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ONE of the difficulties of dealing with dynamite outrages abroad is the large amount of dynamite constantly in transit and in use for legitimate purposes. The British Inspectors of Explosives say that the importation of foreign dynamite, though less than in the preceding year, is still considerable. It began after the expiration, in 1881, of the Nobel English patent; and importations have since been as follows:

Year.	Pounds.	Cargoes.
1882	1,008,050	..
1883	1,920,650	46
1884	1,085,000	30

MR. HENRY MOON, inventor and patentee of the "Quicksilver-Wave Amalgamator," writes in the London *Mining Journal*: "I would undertake to place forty of my quicksilver-wave amalgamators on different mines in Queensland for a sum of £2000. *The only other expense would be an allowance for my personal expenses and a small salary, a royalty to my company, and an allowance to me for management by a percentage on the net proceeds of the venture.*" The italics are ours; but the modesty is MOON'S. How it may be in Queensland, we will not undertake to say; but mine-owners in this country are not liberal to inventors of new amalgamators. After going so far as to pay the price and the royalty and the salary and the expenses (if they ever do go so far as all that); they are sure to want the net profits themselves.

THE subject of coal-dust explosions continues to be vigorously discussed abroad; and the danger of this element, when combined with even small quantities of fire-damp, is no longer seriously questioned. A number of interesting articles on the subject have appeared in the *Oesterreichische Zeitschrift*, in which recent explosions are described. Mr. RUDOLPH SCHNEIDER, manager of the Segen Gottes colliery, is now contributing to that journal an account of the methods pursued by him to avert this danger. So far as he has developed them, they seem to be comprised in thorough ventilation and the moistening of dry and dusty places before firing blasts in them. In all such places, moreover, safe refuges are provided for the miners, and they are obliged to resort to these when firing is to commence. Such simple remedies, combined with vigilance and discipline, will probably suffice.

ON another page, will be found a paper on the Cowles electric smelting process, read by Dr. T. STERRY HUNT at the current meeting of the American Institute of Mining Engineers at Halifax. In the ENGINEERING AND MINING JOURNAL of August 8th, was first described, with illustrations of the apparatus used, this most interesting and important metallurgical invention, and to make Dr. HUNT'S paper clearer, we now illustrate the latest form of the Cowles furnace, in which the copper or other metal used for the alloy is in the form of rods running across the furnace; it having been found that where grains of copper were used, they sometimes fused together in such a manner as to short-circuit the current. The proportions of the Cowles aluminium bronzes are so remarkable that these alloys will probably receive very wide applications; their wonderful strength, greater than the best steel, combined with the lightness and resistance to corrosion, makes it probable that they will be used in heavy ordnance, in machinery, and in other uses requiring extreme resistance. In fact, as we consider the subject, the field of its usefulness widens, and the importance of this metallurgical improvement becomes more and more striking, until it takes rank as one of the most important inventions of recent years. If by this method aluminium can be produced at one dollar or let us say at even five dollars a pound, and if from one to ten per cent mixed with zinc or copper can so vastly increase the strength and durability of each, it may have an important influence in extending the uses and consumption of these metals, and may therefore have an influence on the copper markets of the future.

THE COAST SURVEY.

The American Association for the Advancement of Science, at its recent meeting in Ann Arbor, passed a series of resolutions concerning the scientific work of the Coast Survey, which might serve as a text for more extended comment than we propose to make upon them at this time. There is an evident tendency to throw all the blame of the abuses recently discovered in the administration of the Coast Survey upon the lamentable weakness of its late chief—a man of such abilities and of such charming personal qualities that we can not find it in our hearts to speak of him otherwise than with sorrowful affection, even in his disgrace. It is intimated that, apart from this one sad defection, the Survey and its work are efficient and praiseworthy. Unfortunately, many of the abuses recently exposed have been going on for many years; and the real question which they raise is, whether the system by which, under whatever personal supervision they became possible, is the right system for a governmental bureau.

The claim that only scientific men can judge of scientific work and its value, which is the comment of the American Association upon the Coast Survey scandal, does not meet this question. It is not scientific men, but the representatives and officers of the people, who must determine to what extent, for what purposes, and under what safeguards the public money shall be spent. Scientists are simply like experts in court: they must convince by their explanations and arguments the people who have to decide the case. And when scientific men are servants of the government, their besetting danger is an enthusiasm for science which leads them to do, not merely what they were appointed and expected to do, but every thing else that they think would be important, useful, interesting, or scientific. We might almost say that no legislature and no Congress ever understood what it was beginning, when it instituted a scientific work, in the usual fashion, by leaving it under the control, almost with-

out censorship or supervision, of a scientific head. The beginning is simply the entering-wedge; and too often, by all the arts of puffing and lobbying, the work is magnified and increased as it continues, until some reaction or exposure breaks it up altogether—and science is ultimately the sufferer from the unworthy means employed to advance it.

The Coast Survey is a case in point. From the beginning, it has been without a thorough organization fixed by law. The statutes and joint resolutions concerning it are singularly few and meager. The praise of it from scientific quarters has been singularly persistent and vague. And now, suddenly, while it was extolled as the very model of what such a bureau should be, it turns out the model of what should be avoided.

The lax administration of the Survey and the want of discipline and strict responsibility thus shown, are not calculated to inspire absolute faith in its scientific work. And since we agree with the American Association that scientific men should judge scientific work, we think the work of the Coast Survey ought to have been, and ought now to be, more carefully scrutinized by competent, *but independent*, authority. That the work has been very expensive, is notorious; and we now see that its quality is guaranteed by the personal character of the individuals who have been employed, but not by any such rigid system of graded supervision as would detect and expose individual shortcoming. The maps of the Coast Survey are miracles of beauty; and it is hard to resist the impression that they must be also miracles of accuracy, just as a finely painted portrait always seems, to one who has never seen its original, to be an excellent likeness. But we have heard of several cases in which the maps of the Coast Survey contained serious errors. In one instance, an engineer engaged in preparing plans for a certain work on the coast, and desiring to save himself the trouble of tracing the survey map, sent for a duplicate copy, upon which he intended to make his own drawing. But he found to his astonishment that the two maps, although perfectly alike in title and date, name and time of survey, and both "approved" by the office, did not agree. In other words, errors in one of the maps had been corrected in the other, without any mark to show it; and the possessor of either might suppose it to be the only one, while the possessor of both could not tell which was the correct one.

It would be interesting to know whether the Coast Survey often practiced this method of maintaining its reputation for accuracy by not confessing its mistakes.

THE TAMARACK SHAFT, LAKE SUPERIOR.

As the deepest shaft in the copper mines of Lake Superior, as proving the continuation of the wonderful Calumet copper-bearing bed in good condition much below the lowest workings of the Calumet & Hecla mine, and as a prospective large producer of copper at a very early day, the new Tamarack shaft has great interest; but to the mining engineer it has also an interest as an example of excellent mining work, being one of the most rapid sinkings through hard rock on record. The accompanying map shows the position of the Tamarack Company's property with regard to the Calumet & Hecla mine and the Osceola (which lies to the southwest of the Calumet & Hecla) workings in the same bed. The Calumet pay chimney extended but little into the property of the Osceola, and its northern limit is shown in the workings of the Calumet a little to the left of No. 4 incline; and as the chimney is about perpendicular to the strike of the bed, this would indicate that the Tamarack new shaft is near the center of the pay chimney. The direction of the inclines in the Calumet mine show the direction of the dip of the rock; in the Tamarack shaft, its degree is ¼, so that for every 1000 feet toward the dip that is gone on the surface, a shaft would have to be about 750 feet deeper.

The fact that there is but slight increase in temperature as depth is attained in this district makes it quite possible to work mines at a much greater depth here than on the Comstock. Four thousand feet, or even 5000 feet in depth would be nothing impracticable, so far as temperature or even the hoisting is concerned. The Calumet rock yields about 4·65 per cent of copper. Through the courtesy of Captain JOHN DANIELL, Superintendent of the Tamarack Company, we have been furnished with the following interesting particulars of the sinking:

"We found 43½ feet of sand and drift on the surface of the rock. Securing the shaft and getting through this was the slowest part of the work. At the end of the first three months, the shaft was 80 feet deep, and reservoir cut in rock to take up surface water. I append extremes in monthly rate of sinking after reaching the rock:

1882, lowest rate, 42 feet;	highest rate, 59·8 feet;	average of year, 41·4 feet.								
1883,	"	"	44	"	"	"	67·0	"	"	"	59·7	"
1884,	"	"	58	"	"	"	70 0	"	"	"	63·4	"
1885, 4 months,			60	"	"	"	68·0	"	"	"	64·0	"

Total depth, 2270 feet from surface to Calumet bed.

"The alternating character of the rock trap and amygdaloid, harder and softer, etc., will, of course, account for the varying rates of progress. The dip of the strata at Tamarack is 38° 15′; and in sinking the shaft the first 1200 feet, no less than thirty-two beds of rock were cut through, among the rest, the Allouez conglomerate, two feet thick, at the point of intersection carrying but little copper. An amygdaloid bed, corresponding geologically to the Albany & Boston lode, carried a good deal of heavy copper when seen in the shaft. Over three tons of small mass and barrel work were taken out in sinking through it. Other amygdaloids were of an inviting character.

"Very little water has been encountered below a depth of 350 feet from the surface, the pump not reaching farther, and, from appearances, when regular mining becomes moderately extensive, none will be hoisted from the bottom of the mine. The dropping of water close to the surface makes a spray that thoroughly wets the timbers from top to bottom, preserving them from dry-rot. Beyond a close division between the hoisting-shafts and pumps and ladder-road, no special attention has been given to ventilation. The workings at the bottom show no appreciable increase of temperature over the other mines of the region, which, I presume, for the depth attained, are the coolest in the world.

"The timbering of the shaft was more extensive and expensive than at first anticipated, some of the trap-rocks shattering from blasting; but no heavy ground was encountered, and up to date not a piece of timber shows signs of pressure. Timbers used in securing shaft are 10 inches by 14 inches, lagged between with sound cedar poles.

"In sinking, a bucket was used, but drums are now constructing to operate two cages, which will—as in coal mines—bring loaded cars to the surface. The engines, a pair of 30-inch by 72-inch cylinders, are equal to hoisting at a high rate of speed—say from 1500 to 1800 feet a minute.

"Since the conglomerate has been reached, stations have been cut at 2300 feet; also at two points in the shaft above; these last to cross-cut from, and develop and extract the ground standing above the point of intersection in the shaft.

"Some 60 feet in length has now been driven on the conglomerate at the bottom level. The cross-cut next above is now piercing the lode; the distance between on the dip is 100 feet; and the upper cross-cut will reach the lode in three weeks. When connections are made between these levels, stoping and discharge of rock from three levels will commence.

"Sinking, as the past has proved, can be rapidly done in the shaft, and getting down 60 feet perpendicular will give 100 feet high of stoping ground. Cost of sinking, all expenses included, has been less than $61 a foot up to date. Contract price, as paid to miners, will be inside of $30 a foot. Cross-cutting will cost from $7.50 to $9 a foot; and driving on the conglomerate from $12 to $15 a foot. Stoping is inexpensive, varying from $10 to $14 a cubic fathom.

"Rand's Little Giant drills were used in sinking 1400 feet, and then for the most part two Rand 'Sluggers.' These last were a great help in hard rock, and assisted us in increasing the rate of sinking after great depth was attained. In moderately hard ground, the Little Giant was equal to requirements. From 18 to 24 holes were drilled each twenty-four hours, varying from 5 to 7 feet in depth; six days a week.

"Giant powder, and a Marquette explosive, 'Excelsior,' were used in sinking; and later, that made by the Hancock Chemical Company; percentage of nitroglycerine varying from 40 to 50, according to the character of the rock.

"Tamarack should have a good future. Finding the conglomerate unimpaired in size and producing qualities, there is every reason to anticipate the average of Calumet & Hecla rock. Depth is the only drawback, but in a dry mine, temperature no higher than normal in the region, this is reduced to a question of hoisting only. The rate of hoisting, generally by friction gear in the copper mines, has rarely been over 400 feet a minute, one skip-road in a shaft. The Calumet & Hecla hoists now from 800 to 1000 feet a minute. Tamarack can easily run 1600 feet a minute with two cages in the same shaft, so that at 2000 feet from the surface we are no more distant than 500 feet, where 400 feet a minute is the rate of speed; the two cages, one up and one down, at the same time giving a further advantage."

This record of an average sinking rate of between 60 and 70 feet a month in very hard rock is very remarkable, and the rate of from 120 to 130 feet of holes bored by each drill in twenty-four hours is wonderful, and must astonish those who, with the same drills and with old-fashioned miners (Cornishmen), can not succeed in getting much over one third of this done. The drillers in the Lake copper mines to-day are, for the most part, Swedes, Polacks, and others who are not miners, but who have learned to handle the rock-drill with wonderful celerity. Such work as this is worthy the attention of the managers of mines elsewhere—not excepting those in Cornwall—and it reflects the very highest credit on Superintendent DANIELL, and also on his Mine Captain, JOHN B. QUICK.

It is worthy of note that not a single mishap occurred during the three years and four months (from February 10th, 1882, to June 20th, 1885) in which this great work was carried on.

The accompanying map shows the position of the Tamarack Company's property, which amounts to some 1200 acres.

Cleaning Petroleum Pipes.—The pipes by which petroleum is transported from the oil regions to the seaboard are cleaned by means of a stem 2½ feet long, having at its front end a diaphragm made of wings, which can fold on each other, and thus enable it to pass an obstruction it can not remove. This machine carries a set of steel scrapers somewhat like those used in cleaning boilers. It is put into the pipes and propelled by the pressure transmitted from the pumps from one station to another. Relays of men follow the scraper by the noise it makes in its progress, one party taking up the pursuit as the other is exhausted. They must not let it get out of their hearing; for if it stops unnoticed, its location can only be established by cutting the pipe.

St. Bernard Tunnel.—A new trans-Alpine line, says the *Engineer*, the St. Bernard Railroad, is likely to be commenced before very long, and to be, when completed, a dangerous competitor for the through traffic with the existing route of St. Gothard. One of the principal features of the new project is, that the indispensable tunnel under the Alps—at the Col Ferret—will be much shorter than any other, either constructed or proposed to be constructed. The length will be only 9¼ kilometers (5¾ miles), while the St. Gothard Tunnel is 15 (9¼ miles), the Mount Cenis 12, and those under the Simplon and Mont Blanc 20 and 19 kilometers respectively. The total length of the St. Bernard line will be but 138 kilometers, or 86 miles, making a saving between London and Brindisi over the St. Gothard route of 59½ miles.

British Production of Open-Hearth Steel Ingots.—The total production of open-hearth steel ingots during the six months ended June 30th of this year has been, according to London *Engineering*, 291,288 tons. The total production of similar ingots during the whole of 1884 was 461,965 tons, so that the production for the first half of 1885 is at the rate of 120,611 tons a year in excess of the manufacture of 1884. The production of different descriptions of open-hearth steel for the six months ended June 30th last was as follows: Plates, 101,917 tons; angles, 50,671 tons; rails, 7247 tons; bars, 91,650 tons; castings, 6463 tons; and forgings, 2845 tons. There were at the same date 165 open-hearth furnaces at work, 45 out of work, and 9 in course of construction. At the end of last year, the corresponding numbers were, respectively, 133, 47, and 23.

EUROPEAN MINING NOTES.

Written for the Engineering and Mining Journal by George G. André.

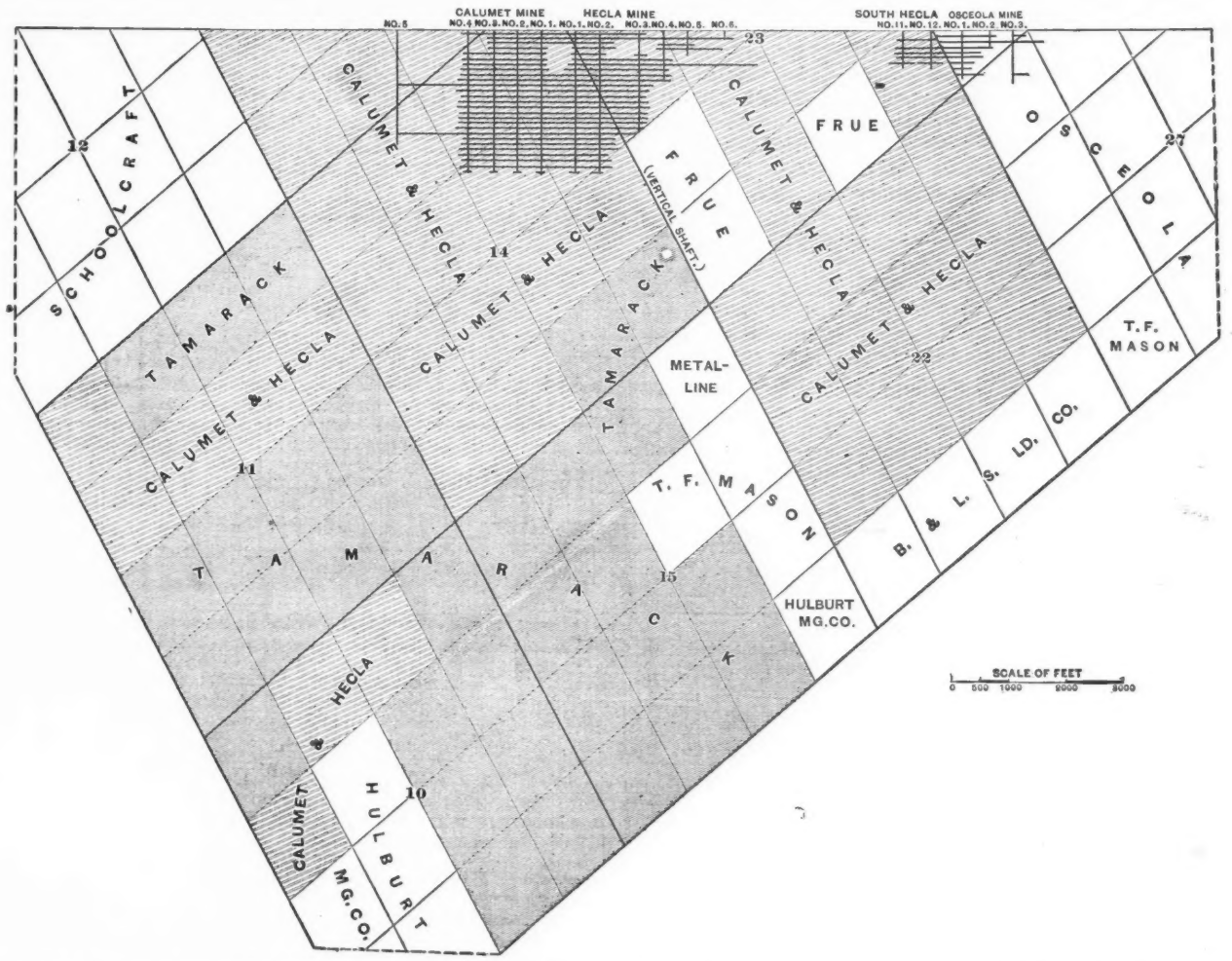
A more melancholy story than that told this week concerning the iron industry of Great Britain in the newspaper reports from the chief centers of trade is nowhere to be found. Hitherto, we have been comforted in the contemplation of our present sorrows by the prospect of a brighter future that the kindly considerate reporter of the market transactions has laid open to our view lest we should be tempted to despair. But even this hopeful individual has now succumbed to the disheartening influence of continued ill-luck in the prophetic line, and this week, for the first time since trade began to fail, he has refrained from making any attempt to draw aside the vail. Left alone with present matters of fact, we are inclined to grow despondent. The demand, we are told, has each week become less, and the resources of the greater number of the manufacturers are exhausted. For months, they have held on in spite of loss, in the hope that things would take a turn and the times mend. But the turn has not been taken, and the better times remain afar off. With a knowledge of such facts as these, we might safely indulge in a little prophecy on our own account; but the effort is unnecessary, since the newspaper reporter tells us that "many of the works are to be closed, unless"—here the chief interest comes in—"the men submit to a large reduction in wages." Now, as it is very clear that one of these two things, the closing of a considerable number of the works now in operation or a large reduction of wages, must happen immediately, the situation becomes intensely interesting. As the matter is in the hands of the men, I will not attempt to foretell the course of events. My experience has taught me that in such a case it is safer to wait till the events have happened. It will be sufficient for the present to note the obvious fact that a crisis is at hand. The outcome will be awaited with interest on your side of the Atlantic.

The ways of the workingman are past finding out. It will hardly be denied by the most ignorant strike agitator—and strike agitators are the most hopelessly ignorant class of men I have ever met with—that trade generally is in a deplorable state and that the iron and coal masters are tottering on the verge of ruin. It should also be clear, even to the dull perception of these individuals, that there are now but two ways of escape open to the masters, one to continue work at a diminished cost of production, the other to cease work altogether. But in spite of these obtrusively plain facts—perhaps on account of them, such is the perversity of the human mind as represented by workingmen's delegates—the British miners have, after due deliberation, decided that the times are favorable for extorting from their employers a great advance in the rate of wages. The committee appointed by the general conference of miners held at Manchester in July has just issued its report, and in this it recommends the appointment of chosen delegates to arrange a demand of 15 per cent increase. If facts are against these people—and they do look as if they were just a bit—so much the worse for the facts.

The claims of the working miners to have their own inspectors has at length received official acknowledgment. The Home Secretary has appointed a working collier to be inspector of mines for the Durham District.

A committee of the North of England Institute of Mining Engineers is occupied in collecting evidence tending to connect earthquakes, and those lesser shakes that in common parlance are distinguished as "seismic disturbances," with outbursts of fire-damp in mines. It is curious to note how ready miners are to believe these phenomena operative in liberating gas, while they obstinately refuse to acknowledge the influence of variations of atmospheric pressure. An earthquake, even if it be only a "seismic disturbance," is a more imposing phenomenon than the perturbations of the mercury column.

The German Fire-Damp Commission has completed its investigations, and the managers of the German government mines have been forbidden to continue the practice of shot-firing where safety-lamps are used. That the latter fact is a consequence of the former hardly admits of doubt, and the prohibition becomes a suggestive commentary on the statements lately made that the commissioners had found dynamite to be a safe explosive agent in an atmosphere containing less than 6 per cent of fire-damp.



MAP.—Showing, on plane of Calumet Conglomerate, the relative position of the Calumet Workings to the Property of the Tamarack Mining Company, situated in Houghton County, Michigan.

The property marked "Frue" on this map, comprising 120 acres, has been bought by the Calumet & Hecla Mining Company for $1,250,000.

The long talked of convention for restricting the production of zinc upon the continent of Europe is now an accomplished fact. Originally proposed between Silesian and Rhenish-Westphalian producers, it has been given wider scope, and it now includes French, Belgian, and Spanish mine-owners. Ninety-eight per cent of the continental producers have given their adhesion to this convention, which has been established on the basis of the production of 1884. The total output for that year was 290,000 tons. Of this quantity, North America produced 30,000 tons and England 30,000 tons; the remainder being produced on the European continent. The continental production has increased during the last five years by an average of 12,000 tons annually. The convention has been formed to stop this increase. The agreement is to continue in force four years.

The bursting of a compressed-air reservoir at one of the Cornish mines has directed attention to a source of danger that has hitherto been little regarded. Steam-boilers are designed, constructed, and watched with the greatest care; but any thing is thought good enough for an air-receiver, and corrosion is allowed to go on unchecked and often unobserved. The negligence of mining men in this matter is truly surprising.

It is announced by Sir G. Elliott, one of the members of the eight-year-

old Accidents in Mines Commission, that that venerably body has now reached the final stage of its inquiry, and that its report will soon be issued. This report should add to our stock of mining knowledge, and I suppose it will be as eagerly perused in the United States as in England. Unfortunately the lapse of years has rendered much of it antiquated; it may be found, indeed, that little more than the last chapter is applicable to modern mining.

Another of those violent outbursts of fire-damp that sometimes happen in Belgian mines has occurred at the Agrappe collieries. While driving a stone drift, the face of the heading on which the men were working suddenly blew out with great force, projecting huge pieces of rock a considerable distance. The outrush of gas continued about twelve hours. It is remarkable that less than an hour before the outburst happened, when the working place and the bottom of the bore-hole kept in advance of the face were examined for fire-damp, no trace of the gas was discovered.

COMMERCIAL ELECTROLYSIS.

By Paget Higgs, LL.D., D.Sc.

THE BIACHE WORKS OF ŒSCHGER, MESDACH & CO.

As has been said, the first step to the study of the practical laws of this subject is the collation of facts as to what has been really effected in practice; and to resume this, we will first refer to the works of Messrs. Œschger, Mesdach & Co., established at Biache, near the English Channel. Here is employed a Gramme machine, duplicate to that used by Dr. Wohlwill at Hamburg, and this supplies twenty baths, producing daily 880 pounds of copper.

The baths in these works are constructed of 2½-inch planking, lined with lead. Each bath is 10 feet long, 2 feet 6 inches wide, and three feet deep. They are coupled in series, and are filled with a solution of sulphate of copper maintained uniformly at a density of 19 degrees Baumé. When the bath becomes too strongly charged with iron, it is purified by crystallization. Each bath contains 88 anodes and 69 cathodes of equal total surfaces. The anodes are arranged in 22 rows of four; they are 28 inches long and 6 inches wide, by about one third of an inch thick. The cathodes are ranged in 23 rows of three; they are 34 inches long, 7 inches wide, and about one tenth of an inch thick. There are therefore in action about 10,800 square feet.

The copper is deposited on the cathodes in sufficiently thick layers to be taken directly to the rolls. The silver is found in the mud at the bottom of the bath. There also are to be found less profitable impurities of the copper, as well as broken bits of cathodes and anodes. The liquor of the bath is decanted through lead siphons, and the mud removed, washed, and subsequently fused with litharge, or with simply a reducing reagent, the former product being treated as argentiferous lead. The decanted bath liquor is raised again to the baths by means of a leaden Giffard injector. Two men are sufficient for the labor; and during five years of work, there have been only two important stoppages, both of them due to culpable ignorance. Those so-called practical men who sneeringly impugn the lasting power of the dynamo as a machine would do well to refer to these machines.

At these works, the production is 1540 pounds (about) of copper in a day of twenty-four hours, or 64 pounds an hour, upon a cathode surface of 13,000 square feet. The thickness of the deposit is about ·00012 inch per hour.

The details of the works of M. Hilarion Roux, at Marseilles, may be summed up in the following abstract, given for reference subsequently when dealing with the practical cost of this process of refining.

The number of the baths is forty, having a total anode surface of about 10,000 square feet, or about 250 square feet per bath. There are 115 plates in each bath; each plate is 2 feet 3 inches long, and is immersed to five sixths of its length, by a width of nearly 6 inches, with a thickness of four tenths of an inch. The weight of a single plate is 26 pounds. The anodes are distant from the cathodes 2 inches, and the latter are ·02 inch thick. The total weight of copper under treatment is 54 tons. Twenty-three pounds are refined per hour, or about 550 pounds per day, with an expenditure of 530 pounds of coal per day, used in driving a No. 1 Gramme depositing-machine at 850 revolutions, absorbing about 5 horse-power. The density of the bath solution is from 16 to 18 degrees Baumé, and the bath is maintained at a temperature of about 25 degrees Cent. The deposit is at the rate of ·0002 pound per square foot of cathode, or a thickness of $\frac{4}{100000}$ inch per hour—a remarkable instance of the importance of small increments of matter.

THE SELBY OAK WORKS, BIRMINGHAM.

In addition to the previous details, a description of the process and details of the work as carried on—as far as is known—at the Selby Oak Works, near Birmingham, by Elliott's Metal Company, will afford sufficient data on which to base conclusions as to the commercial character of the electrical processes of refining copper. These works produce ten tons of refined copper a week; the current is obtained from five Wilde's machines; the baths are in five series of 48, coupled one after the other in each series.

The baths are 2·9 feet long by the same width, and 4 feet depth; each contains 16 anodes, 2 feet long by 6 inches wide by half an inch thickness, weighing each 26 pounds. But there are only 10 cathodes in each bath, each cathode being 1·4 feet long, 22 inches wide, and ·03 inch thick, weighing 2·86 pounds. The total weight of copper in each bath is about 450 pounds, and in a battery of forty-eight baths about 10 tons. The distance between the electrodes is 3½ inches. The immersion of the anodes is only to 20 inches of their length, so that the immersed surface, counting both sides of the anode, is only 1¼ square feet, and there are 30 square feet in each bath. The production for the forty-eight baths is nearly 30 pounds an hour, or about ·65 pound per bath per hour, corresponding to a current of 235 ampères. The anodes are replaced every five weeks, and the work is consecutive for 156 hours a week. There are at Selby Oak Works five installations similar to that described.

CALCULATIONS OF COST.

It would be useless to multiply examples of the commercial importance of electrolysis; it remains to be seen whether these processes are conducted on sound commercial principles—that is, whether they pay, and how they pay. Subsequently, we may consider whether they are capable of extension.

That these processes pay we judge, *à priori*, from the length of time they have been in operation; but to form any opinion as to their value as commercial concerns, it is necessary first to take into account several technical points. The first is the thickness of the deposit in a given time.

Among the earliest investigators in this important field was Mr. John T. Sprague, who employed as a generating source of electricity a Daniell's cell, varying the current by varying the resistances, so that a given thickness—·0035 inch—was obtained in thirty hours, as the slowest, and 45 minutes as the quickest, rate. Between a thickness of ·00012 inch—measured, of course, by weighings—and of ·00144 inch deposit per hour—that is, between rates of deposit as 1 to 12 up to the limit of the last—the deposit was good; beyond this, all quicker rates gave defective deposits. From these trials, Mr. Sprague concluded that the limit of current of 1 ampère to 33 square centimeters, or to say 5 square inches, should not be exceeded. This corresponds to 300 ampères per square meter, or to nearly 30 ampères per square foot of anode. But in practice this limit can never be attained. Even in the most careful manipulation of typographic clichés, when depositing from anodes of pure copper, one third this rate is rarely exceeded with safety. Indeed, there is scarcely a safe, hard-and-fast rule, for the impurities of the anode really control the speed of the operation. M. Gramme has recommended in some cases as slow a deposit as at one tenth of this given rate; and has obtained hard, fine, and tenacious deposits at even 1 ampère per square meter. We have previously referred to the rate of deposits as obtained at Hamburg, at Biache, and at Marseilles, and we may now tabulate these results; but in order to give the deposits appreciable thickness, the total of a week's work of 156 hours is taken:

	Inches.
Maximum deposit chemically pure anodes	·067
Sprague's results, good deposits	·02 to ·24
Gramme's results	·0006 to ·025
Hamburg Works	·02 to ·006
Biache Works	·02
Marseilles Works	·007
Selby Oak Works	·06

The purity of the copper obtained depends on the continuity of the operation, on the distance between the electrodes, and on the purity of the solution and of the anode. But considering circumstances upon which we can not, for want of space, enter here, it would appear that the results, good or bad, from all the works quoted are very closely similar when the deposit does not exceed the rate of 2 millimeters, or say ·08 inch per week.

There are other economical conditions relating to the refining of copper still to be dealt with, and these will reward a little careful thought.

(TO BE CONTINUED.)

MINING ACCIDENTS AND COMPENSATION IN GERMANY.

A Lanarkshire committee, which is at present investigating mining rents and royalties, as also state arrangements for miners during sickness or in the case of accidents, has received the following from the Foreign Office: "Foreign Office, August 5th, 1885. Sir: With reference to the letter from this office of the 11th ult., I am directed by the Marquis of Salisbury to transmit to you, for your information, a translation of a memorandum which has been received by her majesty's representative at Berlin from the German government, giving particulars as to the numbers of killed and wounded in the Saarbrück mine explosions, and the amounts and form of compensation granted. I am, sir, your most obedient and humble servant (Signed), ROBERT BOURKE. Mr. W. Small, Cambuslang." Translation: "*Note Verbale.* The Foreign Office has the honor to transmit to her majesty's embassy the information asked for relative to the recent fire-damp explosions that took place in the coal mines at Saarbrück. (1.) There were two great explosions—one at Lamphausen shaft on the night of the 17th and 18th of March last, the second at the Dudweiler shaft on the 26th of June last. The first caused the death of 180 miners, and twenty more who were saved had to be taken care of for a considerable time at the hospital of the Knappschaft-Verein; while at the second, eighteen miners lost their lives. (2.) In addition to free maintenance and medical attendance (in hospital or at home), the temporarily disabled workman receives from the Knappschaft fund the ordinary invalid's pay of one mark daily; the permanently disabled receives invalid pay, according to statute (the amount of this is estimated according to the length of service of the individual, and covers on an average from about half to two thirds of his former wages). (3.) Life insurance can only be said to exist among the miners at present—the Imperial Unfall Versicherung's Gesetz not having yet come into force—in so far as the Knappschaft Union pays pensions or sums down for education to widows and children of members who have died from accident or natural causes, in proportion to the length of service of the deceased. In the case of the disaster at Lamphausen, the state, being the owner, spontaneously undertook the charge over and above these burdens of already insuring to the families of all those who perished the same rate of support as the Unfall Versicherung law fixes. Consequently the widows of these men receive each 20 per cent, and for each child under fifteen, 15 per cent (with a maximum of 60 per cent) of the yearly wages of their deceased husbands, which amounts on an average to 930 marks. In addition to this, for each fatherless and motherless child, 20 per cent is paid, and, in cases where the deceased has aged relatives or sisters to support, from 10 to 20 per cent of the wages. (4.) Funeral expenses were paid to the family of the victim, 75 marks in each case being the rate laid down by the statutes of the Knappschaft Verein, (5.) The Knappschaft Verein is administered by a board, the members of which are elected every three years, half from the employers and half from the workmen. The chief office of mines (Oberbergamt) only exercises the legal supervision over the union of seeing that it is administered in accordance with its statutes. (6.) The owner of the Saarbrück mines in question is the Prussian state. Berlin, July 30th, 1885." [The equivalent of a German mark is 1s. sterling.]

AN ELECTRICAL FURNACE FOR REDUCING REFRACTORY ORES.*

By Dr. T. Sterry Hunt.

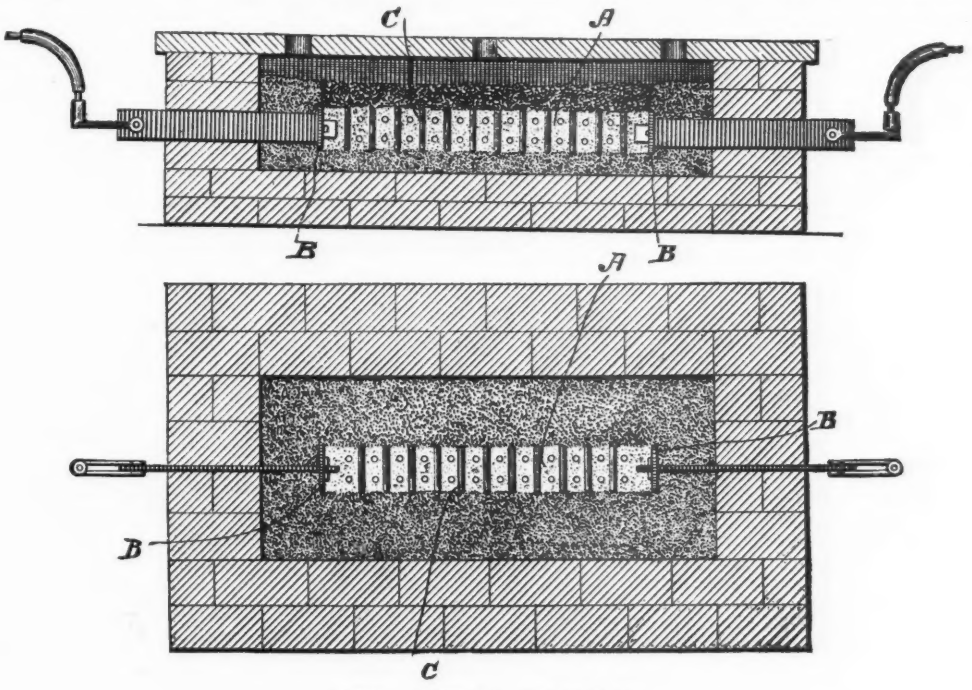
The application of electricity in the extraction of metals has hitherto been chiefly confined to the electrolysis of dissolved or fused compounds of these by various methods. The power of electric currents to generate intense heat in their passage through a resisting medium has, however, long been known, and the late W. Siemens thereby succeeded in fusing considerable quantities of steel. It was, however, reserved to Messrs. Eugene H. and Alfred H. Cowles, of Cleveland, Ohio, to take a new step in the metallurgic art by making the heat thus produced a means of reducing in the presence of carbon the oxides not only of the alkaline metals, but of calcium, magnesium, manganese, aluminium, silicon, and boron, with an ease that permits the production of these elements and their alloys with copper and other metals on a commercial scale.

In the apparatus devised and now employed by the Messrs. Cowles, a column of fragments of well-calcined charcoal so prepared and arranged as to present the requisite electrical resistance, is imbedded horizontally in finely pulverized charcoal, and covered by a layer of the same material coarsely broken, the whole being arranged in a box of fire-brick, covered with perforated tiles and opened at the ends to admit two carbon electrodes an inch and a half in diameter. Through these, the current from a dynamo-electric machine of 30 horse-power is now made to traverse the central core of carbon, whereby such a temperature is at once produced therein that platin-iridium may be instantly melted, and the most refractory oxides already named may be not only fused and volatilized, but reduced to their elemental state with formation of carbonic oxide gas.

If alumina in the form of granulated corundum is mingled with the carbon in the electric path, aluminium is rapidly liberated, being in part carried off with the escaping gas, and in part condensed in the upper layer of charcoal. In this way, are obtained considerable masses of nearly pure fused aluminium and others of a crystalline compound of the metal with carbon. When, however, a portion of granulated copper is placed with the corundum, an alloy of the two metals is obtained, which is probably formed in the overlying stratum, but, at the close of the operation, is found in fused masses below. In this way, there is got, after the current has passed for an hour and a half through the furnace, from four to five pounds of an alloy containing from 15 to 20 per cent of aluminium, and free from iron. On substituting this alloy for copper in a second operation, a compound with over 30 per cent is obtained. Already, the small experimental plant, with a 30 horse-power dynamo, is producing daily over five pounds of aluminium in the form of a rich and brittle alloy, which, by suitable additions of copper, is converted into different grades of aluminium bronze. The valuable qualities of these are so well known that it is only their great cost hitherto that has prevented their more general use in the arts. They are now offered for sale at Cleveland on a basis of five dollars a pound for the contained aluminium. The reduction of silicon is even more easy than that of aluminium. When siliceous sand, mixed with carbon, is placed in the path of the electric current, a part of it is fused into a clear glass, and a part reduced, with the production of considerable masses of crystallized silicon, a portion of this being volatized and reconverted into silica. By the addition of granulated copper, there is readily formed a hard, brittle alloy, holding six or seven per cent of silicon, from which silicon bronzes can be cheaply made. The direct reduction of clay gives an alloy of silicon and aluminum, and with copper, a silico-aluminium bronze that appears to possess properties not less valuable than the compound already mentioned. Even boric oxide is rapidly reduced with evolutions of copious brown fumes, and the formation in presence of copper of a boron bronze, that promises to be of value, while under certain conditions, crystals of what appears to be the so-called adamantoid boron are formed. In some cases also, crystalline graphite has been produced, apparently through the solvent action of aluminium upon carbon.

Remarkable results are got by alloying small quanties of aluminium with an admixture of copper and nickel. One of these compounds broke with a strain of 111,000 pounds to the square inch, with an elongation of 35 hundredths, while a 10 per cent aluminium bronze broke with 109,000 pounds. An addition of from two to three per cent of aluminium to brass greatly increases its tensile strength, and renders it less susceptible to oxidation. While 15 or 20 per cent of aluminium with copper yields a brittle compound, an addition of 10 per cent gives to pure aluminium a great increase of hardness and tenacity, forming an alloy that may have a wide application. It may be added that the difficulties in the way of getting together the reduced aluminium without the aid of copper promise to be overcome at an early day, so that we may expect the cheap production of such alloys and of pure aluminium.

The Messrs. Cowles, in their later work, have been aided by the chemical skill of Prof. C. F. Mabery, now of Cleveland, who is associated with them in some of their patents. These now cover not only the reduction of aluminium, silicon, and boron, as described, but the extraction of manganese, magnesium, and the alkaline metals by the electric furnace. I had the pleasure of hearing Professor Mabery give the first scientific notice of this discovery before the American Association for the Advancement of Science, at Ann Arbor, August 28th, and then spoke of the early results of Deville and those of Debray on aluminium and its alloys, having myself witnessed many of the experiments of both of these chemists thereon. I also insisted that the importance of this new instrument that the Messrs. Cowles have placed in the hands of chemists for producing and controlling degrees of temperature never before obtained can scarcely yet be estimated, either in its economic or its scientific aspect. This heat of the furnace realizes the dream of the alkahest or universal solvent of the alchemists, and he who can rightly use it will be worthy of the ancient title of "magister magnis in ignis."



THE COWLES FURNACE.

I then suggested trials for the reduction of titanium, both from rutile and from titanic iron ore, which will probably soon be made.

I may add that, through the courtesy of these gentlemen, I have since been enabled to spend two entire days in their experimental works at Cleveland, with the brothers Cowles and Professor Mabery, when they explained to me several points not yet made public, and allowed me to direct experiments with one of their furnaces. The fusion of quartz and the reduction of silicon without the presence of copper was repeated, the reduction of boron and the formation of boron bronze, with many other interesting experiments.

The present plant at Cleveland is but a first experimental one, and has only been in operation a few months. The Cowles Electric Smelting Company has secured a large water-power at Lockport, New York, and a dynamo electric machine of 125 horse-power is now building for them at the Brush Works in Cleveland, which will soon be in operation at Lockport, and will permit of the establishment of the electric furnace on a larger scale.

A series of experiments of the products got by this remarkable discovery is, by the courtesy of these gentlemen, placed before the members of the Institute.

* A paper read before the American Institute of Mining Engineers, at Halifax.

The Earth as a Projectile.—In his lecture before the Institution of Civil Engineers on Heat Action of Explosives, Captain Noble remarked: "Helmholz has given an estimate somewhere of the heat that would be developed if our earth were suddenly brought to rest; but if, looking at our earth from an artillery point of view, and following the principles I have to-night laid down, we considered our earth as an enormous projectile, and if we supposed, further, that we could utilize the whole energy stored up in gunpowder, we should yet require a charge 150 times greater than its own weight, or 900 times greater than its volume, to communicate to the earth her motion in her orbit."

MODERN AMERICAN METHODS OF COPPER SMELTING.*

By Edward D. Peters, Jr., M.E., M.D.

CHAPTER VIII.

THE CHEMISTRY OF THE CALCINING PROCESS.

In the blast-furnace, but little sulphur can be directly volatilized, and, consequently, simply fuses with the copper or iron present to form the artificial sulphide called matte. But the sulphates in the presence of carbonic oxide may undergo the following reaction: $CO + FeO,SO_3 = CO_2 + SO_2 + FeO$; the carbonic oxide burning to acid, while the sulphuric acid is reduced to sulphurous acid, which escapes by volatilization, and the protoxide of iron unites with silica to form a slag. But this is true of only a very small proportion of the sulphates present, as in the powerful reducing atmosphere of the blast-furnace, the sulphurous acid, even when once formed, comes in contact with an overwhelming proportion of CO, which in burning to CO_2 robs the SO_2 of its oxygen, reducing it to sulphur, in which condition it unites with iron or copper and enters the matte, thus increasing the amount of this product, while it robs the slag of its most valuable constituent. It is interesting to note the striking difference of the reactions in the reverberatory furnace, where the atmosphere may be regarded as neutral; CO, the most powerful reducing agent, being virtually wanting.

$$Cu_2S + 4CuO, SO_3 = 6CuO + 5SO_2.$$
$$Cu_2S + 2CuO, SO_3 = 2Cu_2O + 3SO_2.$$
$$Cu_2S + 2Cu_2O = 6Cu + SO_2.$$

By studying these formulæ—taken from Percy, Kerl, and Rivot—it will no longer seem strange that the reverberatory produces so much richer matte than the blast-furnace from the same charge. Nearly all the reactions between sulphides and sulphates result in the formation of oxides and volatile SO_2, and were it not for an almost invariable preponderance of undecomposed sulphides in the charge, the elimination of the sulphur might theoretically be almost complete. It is by this all-important but frequently neglected establishment of a proper proportion between the sulphides and sulphates that extraordinary results may be obtained in reverberatory smelting and the roasting plant greatly reduced.

Although treating of smelting, this matter belongs strictly to the calcining department, and presents a field for study of great interest and practical value. A close analogy may be found in the various reverberatory processes as applied to the smelting of galena ores, where almost exactly the same results are produced, using lead instead of copper, and obtaining metallic lead with a minimum amount of calcination, and by putting to accurate practical use the reactions just explained, although text-books on copper metallurgy are strangely silent on this important subject.

The length of time requisite to roast a charge of ore of a given weight in the long furnace under discussion depends, of course, upon the composition of the charge and the degree of thoroughness in oxidation desired. Each of the four hearths of this furnace has an effective area of about 250 square feet, and can consequently receive 4000 pounds of ore if only 16 pounds to the square foot are charged. This is a very moderate charge, especially for heavy sulphide ores, but will ordinarily give better results than a heavier burden. It will cover the hearth about 2¼ inches deep when charged, increasing in bulk to about 4 inches at the completion of the process. By shifting each charge every four hours, the ore will remain 16 hours in the furnace, a time generally ample to produce the desired effect. On this basis, the furnace would put through 12 tons in twenty-four hours, which may possibly be increased to 16 tons by substituting three-hour drops for the four hours recommended. But this is the extreme limit for two men per shift, nor will these figures be reached under ordinary circumstances. Two cords of wood or 2240 pounds of soft coal should supply the grate for twenty-four hours, the supply of air to the ash-pit being kept at the lowest possible point, while the sulphur contents of the ore furnishes a much greater proportion of the heat than does the fuel on the grate.

The manipulations pertaining to the ordinary calcination of ore are too simple and generally known to be worthy of a place in a condensed treatise.

The following experiments form part of a series extending over some ten years, which it was at one time hoped to amplify and carry out into something of positive value. But increasing professional cares, and the impossibility of having the numerous analyses made that constitute an essential part of the work, have prevented the fulfillment of this hope. The material collected will, however, be used wherever it may prove of value in the course of this treatise. The author desires to acknowledge the assistance of Messrs. J. F. Talbot and F. Ames, and others in the chemical portion of the work.

Number of sample.	Per cent of copper in ore.	Per cent of sulphur.	Dry weight of charge.	Per cent of weight lost during calcination.	Copper in roasted ore.				Sulphur in roasted ore.	Hours in furnace.	Remarks.
					As oxide.	As sulphate.	As sulphide.	Total.			
			Lbs.								
1 ..	7·6	37·0	4,130	14·5	3·65	3·25	1·65	8·55	6·41	16	Heavy pyritous ore.
2 ..	7·6	37·0	4,130	11·3	2·27	3·10	2·80	8·17	11·30	12	Same ore.
3 ..	16·4	31·0	3,925	6·4	7·10	3·44	6·80	17·34	8·20	18	Purple ore with much pyrites and some zincblende.
4 ..	16·4	31·0	3,940	9·5	12·80	2·80	2·10	17·70	4·60	24	Same ore.
5 ..	38·0	24·3	3,600	6·2	29·20	4·40	3·70	37·30	.....	18	Matte from cupola.
6 ..	62·2	22·0	3,580	3·7	54·90	3·80	6·60	64·30	.....	18	Blue metal from reverberatory.
7 ..	74·8	21·4	3,800	2·4	61·60	5·40	7·90	74·90	....	18	White metal from reverberatory.

The loss of weight from the removal of the sulphur is partially balanced by the oxygen combining with the metallic bases, and is exceedingly variable, as may be seen by this table.

The loss in copper during calcination is very small, and almost entirely mechanical, being for the most part recoverable where proper arrangements are made for the deposition of the flue-dust. Average results from personal experience show a loss of about 1½ per cent during calcination.

This flue-dust is usually very much lower grade than the ore from which it results, being diluted with the dust from the fluxes, fuel, etc., and generally contains from 20 to 30 per cent of its value in a soluble form, thus prohibiting the use of water as an aid to its condensation, unless provision is made to precipitate the dissolved metal.

Unless the ores treated are of remarkable purity, it is best to smelt the flue-dust by itself, making it into balls with clay or lime and adding the necessary fluxes. Otherwise, the quality of the metal is likely to suffer, as the substances most injurious to it—arsenic, antimony, and tellurium—are volatile, and sure to be condensed in the flues, thus being collected in a concentrated form.

COST OF CALCINING.

The running expenses of a calciner, aside from the slight repairs just alluded to, are small and regular. In twenty-four hours, it will burn one ton of soft coal (2240 pounds) at $5, and require the services of four men at $2, and one quarter the time of a laborer to weigh and bring the charges to the hoppers, the furnace-men dumping and drawing their own charges. This amounts to—

Coal, 1 ton	$5.00
4 furnace-men at $2	8.00
¼ weigher at $2	.50
Wear and repairs on tools, car, etc.	.30
Oil, lights, and miscellaneous	.80
Proportion of superintendence (say one foreman to eight furnaces).	.50
Total	$15.10

Considering that twelve tons per day of highly sulphureted ores can be quite thoroughly calcined in such an apparatus, it leaves but little opportunity for the inventors of automatic roasting-furnaces to cheapen the results that can be obtained in the old-fashioned calciner, when built of proper dimensions and provided with a powerful draught. The above figures have been repeatedly obtained by the author (reduced, of course, to current prices), and after a tolerably extended metallurgical experience and a trial of almost every reasonable type of roasting apparatus, he still emphatically recommends the simple and well-known open-hearth reverberatory calciner for the preliminary roasting of copper ores and mattes.

The consumption of fuel depends largely upon the fireman. It is as easy for him to burn two tons of coal as one; but in a properly constructed furnace, with a moderately favorable ore carrying 20 per cent or more of sulphur, the quantity above indicated will suffice perfectly.

(TO BE CONTINUED.)

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UTILIZATION OF THE SULPHUR ORES OF VIRGINIA IN MAKING SUPERPHOSPHATES.

Written for the Engineering and Mining Journal by C. R. Boyd, M.E.

As corollary to the subject of the manufacture of sulphuric acid from the pyritous ores of Southwestern Virginia, with the view of employing the acid in dissolving phosphate rock, bones, etc., for fertilizing purposes, it may be appropriate to add the following remarks through the ENGINEERING AND MINING JOURNAL:

It was intimated in my monograph, read before the recent Chattanooga Meeting of the American Institute of Mining Engineers, that a final product, as a fertilizer, could be obtained, holding from 8 to 15 per cent available phosphoric acid, from 2 to 4 per cent of ammonia, and a relative amount of potash. It is now proposed to show that, to a very great extent, the region mentioned as the one in which occurs the pyrites may be relied upon as the source also of all the constituents mentioned, except the phosphate rock; it not being considered necessary, so far as the pyritous ores are concerned, to go farther in a description of them than to allude to the fact that two great lines of deposits of these ores exist in Carroll, Grayson, and Wythe counties, Virginia, one of which is composed of iron and copper sulphurets of from 30 to 46 per cent sulphur, and the other an iron sulphide of from 46 to 48 per cent sulphur, both being equally extensive and reliable, the ores of which have been mined and placed upon the surface from deep mines at 64 cents a ton.

The sources of the potash and ammonia exist in well-ascertained deposits of earth, heavily charged with nitrate of potash, to be found in the numerous large caves of these and adjacent counties, some of which are quite accessible to railroad transportation. In addition to which, the kettle salt cake of the salt-works, at Saltville, Virginia, may be utilized as a source of muriates; and the extensive ledges of potash feldspar (from 8 to 15 per cent of potash) of Grayson, dissolved by means of nitro-muriates thus obtainable, is an additional source of potash. It is clear, too, that the large abattoirs that must soon be established near here, for the purpose of slaughtering the animals and canning the meat of the large herds of fine beef raised on the immense blue-grass fields of this region, will contribute most valuable supplies of bones and ammonia.

All of these materials can be obtained in a scope less than one hundred miles, by rail, its greatest length. Therefore, the phosphate rock of South Carolina and of North Carolina being obtainable at from $9.50 to $10 a ton delivered at Cripple Creek in the return coal-cars of the Norfolk & Western Railroad, the sulphuric acid being possible to be produced on the ground at 3 cents a pound by the Roessler process, and the potash and ammoniated constituents at a correspondingly low rate, it is entirely practicable to produce here any grade of superphosphates at from 33 to 20 per cent less than is now done on the coast. Reducing all the costs by the amounts realized from the sale of valuable by-products, in addition to blue vitriol and iron sulphate, the cost of manufacture of fertilizers, in this region, will be at the lowest rate yet obtainable.

FURTHER RESULTS OF EXPERIMENTS WITH COAL-DUST AT NEUNKIRCHEN.*

The secretary of the North of England Institute, Mr. T. W. Bunning, read a paper from which we make the following extracts : The Prussian Commission on Gas met on May 18th, and received communications of the more recent experiments made in the gallery at the König mine, near Neunkirchen. It had been thought by several parties that shot-holes charged with dynamite would not inflame coal-dust. This supposition has been confirmed, at least in cases where there has been a total absence of gas ; when it has never been found that dynamite would ignite the coal-dust, even when a shot was stemmed with dust of the most inflammable description, and when this dust was strewed all round about ; and when a block of coal, after having been conpletely covered over with coal-dust, was blown to pieces by dynamite, no ignition of the dust took place. Neither was dust inflamed by a shot in a block of coal covered with dust and charged with ordinary powder, which blew it to pieces ; but when powder was burned freely in the air, the dust was ignited. These experiments prove, then, the absence of danger when dynamite is employed, when there is no trace of gas. Another set of experiments will take place to find out the influence of dynamite on dusts in the presence of certain quantities of gas. If, under these conditions, the dusts are not inflamed, a great step will have been taken in elucidating the question of shot-firing in coal mines. Nevertheless, the danger of setting fire by dynamite to large quantities of gas disengaged from the incasing strata will always exist ; for it has been often observed that in working in the carboniferous sandstone, giving out a great quantity of gas, the front of the face was filled with flame after the explosion of each shot.

Other experiments have shown that an explosion can be transmitted to dust situated at a great distance from where the explosion first took place. The length of the experimental gallery at Neunkirchen is, as is known, 164 feet ; at a distance of 93·5 feet from the front of the shot-holes, a lateral gallery 38 feet long was placed. The mouths of these two galleries were closed during the experiment in question ; the principal gallery with a door of wood strengthened with iron, and the other with sail-cloth. In the main gallery, a partition of sail-cloth was made, 40 feet from the front of the shots, and containing 882 cubic feet. This was filled with 7 per cent of gas. The bottom of the side gallery was strewed throughout its entire length with very inflammable dust without the least trace of gas. There was, therefore, a space of 55·76 feet between the chamber that contained the gas and the dust in the side gallery, altogether free from either gas or coal-dust. The gas was fired by a shot stemmed with dust ; at first, a deep-toned detonation was heard, followed immediately afterward by a formidable explosion. The side gallery was filled throughout its whole length with flames in violent oscillation, which leaped many feet outside the gallery, followed by a thick after-damp. In the principal gallery, the flame had a length of upward of 144·32 feet. The wooden door at the entrance was completely destroyed, and the remains, shattered in little pieces, were thrown a long distance. The iron frame of the door was bent and broken in several pieces ; the gallery was damaged in many places, and the fittings of the windows destroyed. The first window in the side gallery from the end nearest the opening was clean blown away, as if cut out by a saw. The bottom of the principal gallery was covered, for a short distance from the end, and that of the side gallery through its entire length, with dirt from the ground close by, brought in by the return current. The part of the principal gallery contained between the face of the shot and the branch gallery remained intact. The explosion was the most violent in the side gallery, that is, where the dust was placed.

It has been proved by the experiments that a simple explosion of dust, which had been spread over 65·60 feet from the front of the shots, that is, spread to within 26·24 feet from the side gallery, was transmitted to the dust contained in the side gallery. The experiments tried with wet dust were also very interesting. It was found that a small quantity of water was not of any use. Dust to be rendered inoffensive must be mixed with at least two thirds of its weight of water. In this state, when a quantity is taken up by the hand and formed into a ball, water is squeezed out. It is sufficient to damp the dust to the length of the flame caused by the shot ; but as this distance, with inflammable dust and a very small quantity of gas, might reach 55·76 feet and more, it will be difficult, in practice generally, to apply water. Blown-out shots, charged with 8½ ounces of powder and stemmed with the dusts of dry coal, as those from Kohlscheid and Königin Louise, have given, without dust being sprinkled and without gas, a length of flame of 31·16 feet, and these were augmented to 36·08 feet with 3 per cent of gas. Shots stemmed with rock-dust produce but small lengths of flame, which, in the presence of small quantities of gas, are still shorter than the flame made by shots with clay stemming ; and the addition of 50 per cent of coal-dust to the rock-dust does not sensibly increase the length of the flame. In no case has it been possible to fire dust held in suspension in the gallery by means of a lamp or with a strong flame of gas : the dust only burned in the flame, with a low, crackling noise, without exploding. Experiments have also been made with dust of more or less fineness. The details of these experiments will soon be published. It is much to the credit of Inspector Morgraf that these latter important experiments have been completed in such a short time.

The American Forestry Congress.—On the 22d of this month, the annual meeting of the American Forestry Congress will be held in Boston, Mass. The call for the meeting says that "the natural source of a yearly product of $700,000,000, which the forests at present represent, deserves careful husbanding with the view to its continuity, and calls for due consideration of its interests by legislators as well as by the people at large. Without indulging in the cries of alarmists, we have good reasons and sufficient data to assert that the present policy, if continued, must seriously affect this factor of wealth at no distant time." It further states that, "in view of the far-reaching influences exerted by the forests, wastefulness in the methods of lumbering and the reckless destruction by fires have become criminal." The national government will be requested to pursue a wise and conservative policy in regard to its own forest lands, composed now of 85,000,000 acres. Various papers have been promised by distinguished men, and the following questions will be discussed : 1. The importance of forests in climatic and hydraulic respects. 2. The duties and rights of the state to protect her forest resources. 3. The causes of forest fires, and the way to restrict them. 4. Education and research in forestry matters. 5. Practical forestry.

* *See* ENGINEERING AND MINING JOURNAL for April 4th, 1885, page 221.

Geological Survey Abuses.—The following press dispatch is dated Washington, September 15th : The report prepared at the request of First Auditor Chenowith upon the Geological Survey is an elaborate document. It contains a careful presentation of what is and what is not authorized by the law creating the survey, and defines its work and duties. It also presents the limits covered by the various appropriation bills, and points out where these have been wholly ignored. The report takes strong ground against the legality of the immense expenditures for surveys in the old States. It holds that there is no authority whatever for the arrangement made for furnishing the State of Massachusetts with a topographical map. Director Powell, of his own accord, entered into a contract with that State to make a new topographical map on a scale double that adopted for the other States, Massachusetts to pay $40,000. The part paid out of the funds appropriated for the Geological Survey by Congress is about $50,000. The report charges that, in violation of law, there have been many surveys of mines and mining tracts owned by private individuals. Surveys have also been prosecuted outside of the United States, for which no warrant of law exists. It is claimed that large collections of fossils have been made by various branches of the Geological Survey, which, instead of being deposited in the National Museum, as the law directs, have been diverted to private museums, notably to those of Professor Marsh, of Yale College, and Professor Cope, of Philadelphia. The report states the cost, direct and indirect, to the government of making the collections to have been $50,000 for those held by Professor Marsh ; $100,000 for those retained by Professor Cope. These were kept, in the first instance, under the plea that it was for the purpose of legitimate study preparatory to making reports ; but this work is done, so far as the material now referred to is concerned. The report shows that for the fiscal year 1883-84, the amount paid out for salaries was $112,000 in excess of the appropriation made for that specific object, while for the last fiscal year this excess over appropriations for salaries reached $160,000. Much of the work is described as fragmentary, and a considerable portion is declared to be valueless.

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and for that of book-buyers, give the retail price?]

The American Engineering Register. Designed as a Means of Communication between Architects, Army Engineers, Bridge Engineers, Contractors, Civil Engineers, Consulting Engineers, Draftsmen, Electrical Engineers, Experts, Gas Engineers, Geodetic Engineers, Geologists, Hydraulic Engineers, Hydrographers, Landscape Engineers, Marine Engineers, Mechanical Engineers, Mining Engineers, Navy Engineers, Railroad Officials, Railroad Supply Agents, Sanitary Engineers, Surveyors, Government, County, City, Town, Topographical Engineers, and all those Merchants, Manufacturers, Bankers, Brokers, Attorneys, Solicitors, Agents, and others who may desire to place themselves in Direct Communication with the Foregoing Professions. Copy-righted 1885, by Lewis M. Haupt, C.E., Editor. Note.—The Editor will be pleased to receive the names, occupation, and addresses of any persons not already inserted who may consider themselves entitled to entry under any of the classes named, and any corrections or changes of address made prior to June 1st of each year, for publication in the next annual. Engineering News Publishing Company, Tribune Building, New York. Office, American Engineering Register, Philadelphia. 8vo, pages 411+101.

Alphabetical List, and Classified Lists (eighteen), Formulæ, Tables, etc.

The Steam-Engine Catechism : A Series of Direct Practical Answers to Direct Practical Questions. Mainly Intended for Young Engineers, and for Examination Questions. By Robert Grimshaw, M.E. New York : John Wiley & Sons. 1885. 18mo, pages 149 (including Index). $1.

Principles of Economy in the Design of Metallic Bridges. By Charles B. Bender. New York : John Wiley & Sons. 1885. 8vo, pages 195 and 12 folding plates. $2.50.

The Journal of the Iron and Steel Institute. [No. 1. 1885.]. London : E. & F. N. Spon. 8vo, pages xi+368. (*No Index.*)

Presidential address of Dr. John Percy. On the blast-furnace value of coke, from which the products of distillation from the coal used in its manufacture have been collected (I. Lowthian Bell). Recent results with regard to by-products in coking coal in the Simon-Carvès coke-ovens (Watson Smith). Recent results and further development of the Simon-Carvès coking process (utilization of by-products) (H. Simon). Note with reference to the methods proposed for coking coal and recovering volatile matters (Henry E. Armstrong). On a modified form of the Siemens old type gas-producer, by means of which the gases are enriched and the by-products may be recovered (John Head). On natural gas fuel and its application to manufacturing purposes (Andrew Carnegie). The properties of malleable iron, deduced from its microscopic structure (Dr. Hermann Wedding). Report on the iron and steel industries of Africa, Australasia, Austria, Belgium, Borneo, Brazil, Canada, China, Cuba, France, Germany, India, Italy, Japan, Mexico, Russia, Spain, Sweden, the United States.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

GRANTED SEPTEMBER 8TH, 1885.

325,651. Furnace-Grate. George W. Blackburn and William F. Cordray, Columbus, Ohio ; said Cordray Assignor to Harriet Cordray, same place.
325,667. System of Steam-Heating. Milton Foreman, Philadelphia, Pa.
325,677. Roll for Bending Plate Metal. Robert Kent, Brooklyn, New York.
325,701. Ore-Feeder. William S. Sharpneck, Denver, Colo., Assignor to H. N. Nichols, same place.
325,771. Apparatus for Producing Ammonia. Carl H. Schneider, Freiburg, Germany.
325,787. Brick-Burning Kiln. Henry R. Cassidy, Delhi, Ohio, and Anthony Fries, Brookville, Ind.
325,804. Crushing-Mill. Frank A. Huntington, San Francisco, Cal.
325,810. Mineral Separator and Amalgamator. Allen G. Beebe, Los Angeles, Cal.
325,835. Apparatus for Concentrating Ores. Howard C. Henderson and James A. Henderson, Cherokee, Iowa.
325,860. Power Mechanism for Actuating Steam-Hammers, etc. John W. Pertz, Pittsburg, Pa., Assignor of one half to George E. Williams, same place.
325,991. Speed-Indicator. Harris Tabor, New York City.
326,008. Converting Motion in Oil-Pumping Apparatus. George Allen, Franklin, Pa.
326,053. Double-Acting Force-Pump. David J. Nysewander, New Carlisle, Ohio.
326,057. Miner's Squib. John R. Powell, Plymouth, Pa.
326,066. Process of Making Hydrates of Barium and of Strontium. William G. Strype, Wicklow, Ireland.
326,079. Asbestos Packing-Ring. William Wood, Philadelphia, Pa., Assignor of one half to Josiah Sibley, same place.

FURNACE, MILL, AND FACTORY.

The Columbia Rolling-Mill, operating ten puddling and one heating-furnace, was started up September 14th, after a long suspension, giving employment to several hundred hands.

By the bursting of a large fly-wheel in the rolling-mill of P. L. Kimberly & Co., at Greenville, Pa., September 15th, two employés were fatally injured. The flying fragments demolished the roof of the mill and crushed large timbers.

The Pittsburg *Telegraph* says that the iron business continues to improve. Mills long idle are running, mills on single turn are preparing to run double turn. In the mills located near the Alleghany River, the outlook is not quite so favorable, but there are some as active as any in the city. The puddling forge in the Wayne mill is on six heats. In both puddling-forges of the Sable Iron and Nail-Works, double turn is made. There is very little doing in the Shoenberger Iron and Nail-Works. The average work in one puddling-forge is on single turn, and in the finishing departments work is confined to rolling heavy steel plates and the manufacture of horseshoes. Hussey, Howe & Co. are operating every department of their steel plant, and report a slight improvement, but a very unsatisfactory report is given as to prices. The advance is scarcely noticeable. Wilson, Walker & Co. are active in every department excepting the forge mill, which at present is a little slack. The puddlers are on double turn, with prospects of continuing until the winter months. Nearly one half of the finished output is made from steel, so that less than one half the muck iron made in the mill is rolled into finished iron. Every department of the Union Mills is on double, making in the puddling-forge about 90 tons of muck bars. This, with the steel and scrap-iron, makes the daily run on the finishing-rolls fully 200 net tons. The mills manufacturing iron for the tube mills are all active. The Republic mill is running double turn in every department. The Vesuvius mill (Morehead & Company's) is now running, producing its share of pipe iron. Among the mills running double turn in the puddling departments, is the Pittsburg Forge and Iron-Works, Vulcan Forge and Iron-Works, at Chartiers; Pittsburg Iron-Works, of Painter & Sons; Clinton, Fort Pitt, Iron and Steel-Works; the Millvale Rolling-Mill (Graff, Bennett & Company); Sligo Iron Mill; Tenth Street mill, of Oliver Brothers & Phillips, and also this firm's mill in Alleghany.

It is said that James Cochran & Sons, the largest coke firm outside the syndicate, have sold their extensive works at Dawson station to the Frick Company for $762,000.

One of the Lucy furnaces, Pittsburg, has just been blown in after a chill of nearly three months. The outlook for Isabella Furnace No. 2, which was banked up on July 28th, is very favorable. It is expected that inside of two weeks casts will be running again at the usual rate of 200 tons a day.

The Allentown (Pa.) Rolling-Mill Company has resumed work in its puddle mill. The bar and guide works are also in operation.

The large nail factory at Oxford Furnace, New Jersey, owned and operated by the Oxford Iron Company, has resumed operations after standing idle several months. About 250 hands are employed.

It is rumored that Spang, Chalfant & Co., of the Etna Iron-Works, at Etna, Pa., will soon begin the erection of the Clapp-Griffiths plant, which is to be connected with the Isabella blast-furnace.

The Weymouth Iron Company's rolling-mills, Weymouth, Mass., have resumed operations. Orders are received every day, and the prospects are for a busy winter.

The Sharon Iron Company's works, Youngstown, Ohio, will soon resume operations in every department except the nail mill and factory, and a comparatively steady run during the entire winter is assured.

Improvements are making at the blast-furnace plant of Carnegie Brothers & Co., Pittsburg. At Braddock's D furnace, which has been out of blast since last month to be relined, is nearly ready to be blown in. In addition to this work, a new Whitwell stove has been built, for which it required about a quarter of a million of fire-brick and nearly 300,000 of the same kind for the relining of the furnace. During the eighteen months that D furnace was in blast, the amount produced was 94,000 tons.

The Pennsylvania Tube-Works, Pittsburg, Pa., has just completed an order, and has two others under way, for eight-inch pipes, which, if placed in one line, would be the longest ever turned out by any pipe manufactory in the world. The order finished is thirty-five miles long, and is for the Oil City, Pa., Fuel Supply Company. The one upon which work has just begun is a line forty miles long, for the Warren Light and Heat Company, at Warren, Pa. The third, which is now under way, is for the Jamestown Natural Gas Company, at Jamestown, New York, which is also forty miles long, making a total of 115 miles. Twenty-eight pounds to the foot is usually considered the amount to an eight-inch wrought-iron pipe, which at this rate would make it 17,001,600 pounds.

LABOR AND WAGES.

When Superintendent Fox, of the United States Mint, reached his office on the 12th inst., he was informed by Chief Steele that a number of the employés had demanded that certain conditions be accorded to them before they went to work. Mr. Fox requested the report to be put in writing, and when it was done, he immediately wrote letters of dismissal to all of the men who joined in the demand. These letters gave as the reason for their discharge, "insubordination and conspiracy to embarrass the work of the government." Nine of the discharged hands made affidavit before Magistrate Clement most positively denying the truth of the alleged insubordination and conspiracy, and averring that they were about to tender their resignations to Superintendent Fox, "when we were asked not to resign by Coiner William S. Steele." The men said that, when employés have been dismissed, no previous notice of dismissal has been given, and they would know nothing of their discharge until it would be handed to them as they were passing out of the door, to go home after their day's work. All they asked, they said, was that they "should not be discharged except for cause."

Mr. J. D. Pringle, the English political economist, now engaged by the Pittsburg *Commercial Gazette*, has just finished a tour among the Monongahela coal mine strikers, and writes the following to his paper:

"The strike now going on among the 8000 miners on the Monongahela River is one of the most important that has been entered upon in this part of the country. So far, the conflict has been entirely devoid of any lawless demonstrations. This is, at least, a redeeming feature in modern strikes, considering that so much destruction of life and property has characterized recent trade disputes on a large scale. The present strike, as far as the miners are concerned, has every prospect of being a stubborn one. On which side the victory will rest, is difficult to determine, nor is it easy to distinguish which side is in the right. It seems necessary to reiterate the cause of the strike.

"Since the miners were defeated in the strike last year, various prices for mining have been in operation. All these prices were exceedingly low. As last spring departed, a movement to induce the miners to join the Knights of Labor Association was started. At an influential convention, it was resolved to demand a uniform rate, and that the rate be three cents a bushel. The response has been so unanimous that the strikers are more solidly united than at any previous conflict in their history. On the 14th, only one mine was at work in the third pool—the Black Diamond. In the fourth pool, three mines are running on what is termed the co-operative plan. The miners of Walton's mines in the second pool, although under contract to give or take notice for any advance or reduction, have ceased working, regardless of the contract. Rumors are, that the Walton firm intends to sue each workingman for damages caused by unnecessary suspension of work. The coal operators are unanimous that three cents can not be paid. Their reasons seem quite logical and also indicate a very cheerless prospect. Mr. Louis Staib, one of the leading operators, thus summarizes the side of the employers. He said:

"'The Kanawha operators, without doubt, are beating us out of the market. They can put coal into Cincinnati much cheaper than it is possible for us to hope to do. Their cost of transportation from the mines to the Cincinnati market is only one cent a bushel. Our cost is thirteen and a quarter cents from Pittsburg, and an additional cent from the third and fourth pools. Besides, a steamboat can make two trips from the Kanawha to one made from Pittsburg. There is another feature. The market is really so overstocked with coal that consumers don't care whether we strike or not. A threatened or actual strike has no effect on our down-river consumers now. Hocking Valley is also rushing coal into Cincinnati, and this intensifies the competition greatly. New Orleans is also much overstocked. At present, it has six months' coal in its market, and it can easily afford to wait a long time for our conflict to end. Alabama is beginning to cut us out of many places about New Orleans, and that causes us to do business at the lowest possible margin of profit. Indeed, many of us are maintaining a trade without making a cent.'

"The miners reply to this that the quality of the Monongahela River coal is so much superior to that of the Kanawha coal that the higher price obtained for it is more than a set-off for the cheap transport rate from Kanawha. The miners also say that there ought to be at least a half-cent higher digging rate on the Monongahela River than on the Kanawha. They argue that, if there were no unions at all, the common law that governs the production and exchange would cause this difference. There is little doubt that the operators generally are inclined to pay two and a half cents a bushel for mining. It is therefore probable that the miners will accept this important concession if it is definitely made. They are all anxious to do something during the fall run. At least, they believe that the glory of the Pittsburg coal trade has departed, and they are very wishful to turn over some money as soon as possible. This anxiety is so great that they will probably make an offer to the miners within a few days. The miners can not afford to hold out very long, either. All of them, with very few exceptions, are in poverty.

"There is much quiet suffering among the strikers. Work has been so slack for such a lengthened period, and wages so fearfully small, that at present there are hundreds of miners on the river without even a crust of bread in their cupboard. If the strike continues, and cold weather sets in, the scene may become more tumultuous than at present. Just now, the strikers are quietly bearing their sufferings, although the interior of hundreds of hovels present most miserable pictures. On all parts of the river, ragged little children, and dejected and half-clothed parents, who reside in rotten structures, containing only rough wooden benches for furniture, are to be found. The present submission to this condition of things is, doubtless, owing to the great faith in the promised help of the Knights of Labor brotherhood. The strikers openly assert that that association will see them through. If it does, and the strike is won, it will be one of the most prosperous strikes that the organization has made, because almost every miner in the country will join it. The contrary will be the case if the strike is a failure."

The Coal Miners' Convention at Monongahela City decided on the 15th to insist upon a three-cent mining rate in the river mines. There was little discussion, and when the committee presented their report demanding a three-cent rate, it was adopted without a dissenting voice. The strike is now to be conducted with the hearty support of both the Miners' Association and the Knights of Labor. A bitter struggle is anticipated. The men are united as they never have been before, and the operators are firm in their determination not to concede the advance.

A dispatch, dated Pittsburg, September 14th, says that the miners at the Black Diamond Coal-Works in the third pool have returned to work at a compromise rate of 2½ cents a bushel. The operators offered 2¼ cents and the men demanded ½ cent more. It is said that the firm of Joseph Walton & Co. will become plaintiff in suits against 250 of their miners who violated an agreement by striking without notice. The firm promised steady employment on a 2¼-cent basis, and the men pledged themselves to give thirty days' notice of a strike. The suits are to be for damages for violation of contract. Other suits of a criminal nature will also be instituted against the persons who incited the strike and induced the men to come out. These actions, it is thought, will be of vital importance to both miner and operator, who regard the issue as a test. They are not merely intended to induce the men to return to work, but to settle the question whether employés working under an agreement with their employer can strike without laying themselves open to prosecution.

A dispatch from Seattle, Wyoming Territory, says that a large building occupied by Chinese laborers at the Coal Creek mines, twenty miles from there, was attacked by a mob on September 12th, about one

o'clock A.M. The Chinamen, about fifty in number, fled into the woods. The Chinese lodging-house and cook-house were burned. These buildings belonged to the Oregon Improvement Company. The attacking party were all masked. None of the Chinamen was hurt. The attack, coming so soon after the Squak Valley massacre, has created an uneasy feeling, and trouble at the Newcastle mines is feared.

The Knights of Labor have taken up the cudgels against the Chinese, and their ultimate expulsion from the territory is probable. The Chinese are becoming demoralized. Thirty of them boarded yesterday's West-bound express, and a like number set out for the West on foot, with their baggage on their backs. The white miners were told they could go back to work this morning, and will likely do so if no attempt is made to work the Chinese with them.

In the National Convention of Miners at Indianapolis, September 11th, resolutions were adopted favoring the total abolition of the system of contracting for convict labor when it is brought into competition with free labor; the adoption of two weeks' pay; and the abolition of the truck system in all its forms. A general suspension of the mining of coal in the United States and territories for one week at a date as early as possible was approved. A recommendation was adopted to the effect that, on all general questions arising within the jurisdiction of the association, ten days' notice be given by the miners, provided operators grant the same courtesy to them. The principles of arbitration were favored in preference to strikes, and, following this, a resolution to abolish the free-turn system in all the States and territories was adopted. The powers and duties of the executive board, which is to be the governing body of the organization, were defined, and it was decided that revenue should be raised "by a monthly assessment of one cent on each member of the union and 25 cents dues from each, to be collected this year before November 1st." An address to the miners of the United States was adopted, setting forth the objects of the Federation. The following board at large was elected: Christopher Evans, of Ohio, Executive Secretary, who is also to exercise the powers and duties of President; Daniel McLaughlin, of Illinois, Treasurer; J. J. Sullivan, of Iowa; John H. Leavis, of Pennsylvania; I. B. Fleming, of West Virginia. The members of the Executive Board representing the several States were as follows: Illinois, David Ross; Ohio, John McBride; Indiana, Patrick McAdams; West Virginia, T. P. Gray; Iowa, David Reed; Kansas, James Smith; Pennsylvania, George Harris.

The long strike at the works of the Cleveland Rolling-Mill Company continues, and there is no telling when it will end, although the conditions are such as to foreshadow a change at any time. The company has intimated to the men that, while it will not give in, although the mills should rot down, a quiet return to work at its terms may soon be followed by the higher wages they demand. Many of the older men regard this as in good faith; for, whatever may be charged against the Chisholms, they have the reputation of standing by all their agreements; but the younger and newer men regard it as a trick, and say that, should they go to work at the company's terms, they would never get a raise. Every day that passes sees a greater disposition to return, and when the men who feel this way find that they are in the majority, a break may be looked for. Something will have to be done before long. The thousands of men who walk the streets in idleness to-day have wives and children at home and no bread in the house. Some of them have means and others still have credit, but a large number have neither. The merchants of the ward can not afford the risk of carrying accounts of the main body of the men, and have not the capital to do it, even if so disposed. Picket duty is still kept up about the mills, and an attempt to start them now would be followed by a great deal of trouble and probably some bloodshed. Several men have been at work in the wire mill during the past week shipping wire, but they have done it at the risk of their lives, as armed guards have stood about the place in scores both day and night, threatening injury to any of the strikers who should attempt to return to work. The strikers have their relief head-quarters, and on Saturday last about 100 barrrels of flour and a great many potatoes were distributed. Many of the people are in desperate want, and only by the help they have received from the outside have been able to keep body and soul together. As the cold weather comes on, this suffering will increase. Contributions are still coming in, but as the relief committee is endeavoring to supply 1300 families, it can be seen that small mites from here and there can not count for much. Some change will have to occur at an early date.

The miners of the Neilson shaft, owned by the Delaware, Lackawanna & Western Railroad, at Shamokin, Pa., struck on September 12th for an advance in wages. This makes four collieries on strike in Shamokin.

On September 15th, about 500 miners employed at Yorktown No. 5 colliery, struck against what they claim to be over-dockage, some of the miners charging that they have been docked as high as four cars out of ten. A committee had a conference with the superintendent to-day, but receiving no satisfaction, they determined to remain out.

The Wheeling Coal Company advanced the price of mining at its Wheeling Creek and Maynard mines from 40 to 50 cents a ton without being asked by the miners. Work has been rather slow in the mines along the Tuscarawas Valley road all summer, but appears to be improving some the last month or six weeks. At the Wheeling Creek mines, about 150 men are employed at present and 125 in the Maynard mines.

A dispatch, dated Pittsburg, September 17th, says that the miners employed at the Cedar Hill mines in the fourth pool, who last night were conceded the rate of 3 cents a bushel for digging, were at the mouth of the pit this morning ready to resume work, when some bold spirits among them called for the election of a check-weighman. The suggestion was greeted with cheers and an election at once began. Before it had concluded, the mine boss appeared on the scene and politely informed the assembled miners that his employers would not tolerate a check-weighman at that mine. One of the miners jumped to his feet and moved that they at once return to their homes, to remain there until their latest wish is gratified. It was carried by a unanimous vote. The action of the men at this mine is loudly applauded by the strikers at all other mines, who are yet to be offered a 3-cent rate. It is believed that the action of the Cedar Hill men is the signal for a united demand for check-weighmen in addition to the increased rate. If so, the strike will be further prolonged. Heretofore, about one half of the mine-owners have conceded the employment of check-weighmen.

Through the long strike of the nailers, the stock of nails in Pittsburg and the West has been almost exhausted. Dealers report the supply smaller than for twenty years, and say that an order for 100 kegs could not be filled in Pittsburg. The strike is in its fourth month, with no indications of an early resumption of the factories, as there are no signs of weakness on either side.

TRANSPORTATION NOTES.

Ten years ago, a standard car-load on all first-class railroads was 20,000 pounds, the weight of the car being 20,500 pounds. In 1881, the load on most roads had increased to 40,000, but the weight of the car had increased to only 22,000 pounds. The master car-builders of the Pennsylvania Railroad have now adopted cars to carry 60,000 pounds, while the weight of the cars will be very little increased. Instead of hauling more than one pound of car to one pound of freight, nearly three pounds of freight can now be hauled for one pound of car. The substitution of steel for iron rails has made the change possible.

The Baltimore & Ohio Railroad Company is defendant in a bill of equity filed in Common Pleas Court No. 4, Philadelphia, September 14th, by the Pennsylvania Railroad Company. The bill is brought to enjoin the company from making grade crossings within the city limits. Chief-Engineer Brown, of the Pennsylvania Railroad, deposes that the grade crossings can be easily obviated by raising the grade about 13 feet, and that the interest on the amount of money required to do this will not amount to much more than the necessary expense of maintaining the crossings, which expense should be wholly borne by the Baltimore & Ohio Railroad. In opposition to this view, the officials of the Baltimore & Ohio road say that such a course would involve the violation of its contracts with such of the property owners as gave them the right of way in consideration of the facilities that the road would give them for loading and unloading from their properties. An examiner will be appointed to take testimony.

COAL TRADE NOTES.

The Erie Railroad Company owns extensive anthracite coal mines in the Lackawanna Valley, which are now brought into direct communication with its road by the completion of its Wyoming branch from Hawley to Pittston. The fuel used on the Erie locomotives is semi-bituminous coal, which the company purchases. It is objectionable as a fuel, owing to the sooty clouds of smoke and showers of cinders that attend its consumption, making its use annoying to the traveling public. On the score of economy and cleanliness, the Erie Company is desirous of substituting its own hard coal for the soft coal that it is compelled to buy. With that end in view, the general superintendent ordered the changing of one of the soft-coal burning Erie locomotives into an anthracite burner, and a fortnight or so ago it was placed on the road to experiment with hard coal. It was run as the day express West and the Chicago express East between Port Jervis and Jersey City. The locomotive not only failed to make schedule time every trip it was run, but it lost from twenty to thirty minutes each trip. The engineers and firemen of the road are strongly opposed to the substitution of hard for soft coal on their engines, because of the increased labor and greater attention that are required in its use to keep up steam. The Erie managers, believing that the failure of the anthracite burner to make time was due to this opposition, leased of the Lehigh Valley Railroad Company one of its hard-coal-burning engines, and employed Thomas Moore, an experienced Lehigh Valley engineer, to run it. The locomotive was placed on the Erie Railroad on September 5th, on the same trains with which the Erie engine and engineer had failed to make schedule time. Eight successive trips were made by it, and schedule time was not only made every trip, but several minutes' lost time were made up with ease, much to the chagrin of the Erie engineers and firemen. The Lehigh engine was then transferred to the fast St. Louis limited express east and west between Port Jervis and Jersey City. These are heavy Pullman car trains, and the trial of the locomotive on them has thus far been disappointing to the company and the engineer, as the East-bound train has run as much as twenty minutes late, and schedule time has not been made on any trip. The engineer of the Lehigh engine says that the unfavorable result is due to derangement of the locomotive's machinery, but the Erie engineers and firemen declare that no hard-coal-burning engine can make time with the Erie's heavy Pullman trains. The experiments are to be continued until the question is definitely settled one way or the other.

A dispatch, dated September 11th, from Providence, Rhode Island, says: A fire caused by spontaneous combustion has been burning in 8000 tons of coal owned by the Boston & Providence Railroad Company at India Point since Tuesday. To-day, the Providence fire department was called upon for aid. It succeeded in stopping the blaze, but not the fire, which is at the bottom of the gigantic pile, and will probably burn for one or two weeks. The work of removing the coal was carried on as rapidly as possible to-day. The coal is so full of oil that the water has little effect upon it.

A dispatch, dated London, September 17th, says that a serious accident occurred at the Oakwell colliery, at Ilkestone, eight miles from Derby. The shaft of the colliery was blocked and 300 miners were entombed. Efforts were made to rescue them by way of the furnace shaft.

INDIANA.

Articles of incorporation were filed at Indianapolis September 15th, of the Chicago, Central Indiana, Block Coal & Ohio River Railroad Company, the capital stock being $7,800,000. The directors are Henry B. Lovering, of Lynn, Mass.; A. C. Drinkwater, of Branton, Mass.; Edward L. Tobey, Orrin T. Gray, and R. H. Clauston, of Boston; E. F. Pillsbury, of Melrose, Mass.; and F. Jones, of Hartford, Conn. The road is to run from Rockport, Spencer County, through the counties of Dubois, Martin, Greene, Owen, Clay, Parke, Fountain, Benton, Warren, White, and Jasper to the town of Hebron, Porter County, a distance of 350 miles.

MONTANA.

A representative of the Anaconda *Review* has visited the Teralta coal mine. This mine is just north of Lost Creek, about three miles north of Anaconda. The mine was located a little over two years ago, and a shaft was sunk 70 feet on it, and then abandoned. Shortly afterward, they started to tunnel from a small ravine near by, and struck a small seam, at forty feet, which was dipping down at an angle of about fifteen degrees. This tunnel, after being driven twenty feet farther, was stopped on account of water. A short time ago, the present company determined to begin to drive a tunnel that would strike the seam about twenty feet lower. This work has been inprogress for the last three or four weeks. Saturday last, after driving a tunnel sixty feet, the seam was encountered again, and they expect to have it advanced far enough within the next two weeks to begin mining coal. The seam is twenty-two inches in thickness, and the coal is equal in quality to any brought to this territory, and makes excellent smelting coal. Last winter, a trial was made of this coal at the smelter. A five-ton lot was used, and pronounced superior to any ever used at the smelter. There is a good prospect of having home-mined coal in the Anaconda market.

OHIO.

By an explosion of fire-damp in the Youghiogheny Valley coal mine at Guffey's station, Ohio, on Saturday, two miners were fatally injured, and a number of others sustained slighter injuries. The explosion was caused by a workman digging through a partition-wall into an abandoned entry. The gas, rushing through the vent, exploded on coming into contact with his lamp. The interior of the mine and a number of cars were badly damaged.

PENNSYLVANIA.

ANTHRACITE.

At Hickory Ridge colliery, operated by the Mineral Railroad and Mining Company, extensive improvements are under way. A new slope is almost completed, and a large breaker of the most improved pattern is to be erected. A number of additional hands will find employment.

Fire broke out on September 14th, in the shaft of the Henry Clay colliery, owned by the Philadelphia & Reading Coal and Iron Company, and the engine-house and machinery were consumed. Two pump-men were down in the shaft when the fire broke out, but they escaped through the old workings. The loss will aggregate $12,000. The cause of the fire is unknown. The colliery employed 300 hands, and will be idle for some time.

Four collieries are now idle in the Shamokin Valley, throwing out of employment 1200 men. Officials of the collieries that are idle from the attempted enforcement of the lumber law say that there is no probability of an immediate settlement of the difficulties.

Two men were killed at the Indian Ridge colliery, Shenandoah, September 14th. They were loading coal from under the breaker, when six empty cars that broke loose from a train above rushed down the siding and collided with the cars they were loading, crushing the men to death.

The pulley at the top of the breaker at colliery No. 4, of the Lehigh Valley Coal Company, at Shenandoah, Pa., broke on the 16th, precipitating a loaded car on the platform below, where twelve men were working. Connor Dennery and two Poles were severely injured, one of the latter, it is thought, fatally.

WYOMING.

The Wyoming Coal Company has been incorporated for the purpose of mining and selling coal, and buying and selling coal lands in the territory of Wyoming. The directors for the first year are Ernst Dunker, Philip Hirleman, John Rechmann, J. W. Tripp, and W. J. Welbon. The capital stock is $500,000, in 10,000 shares.

GAS AND PETROLEUM NOTES.

Exports of refined, crude, and naphtha from the following ports, January 1st to September 12th :

	1885. Gallons.	1884. Gallons.
From Boston	6,621,323	4,995,698
Philadelphia	103,019,718	57,687,945
Baltimore	8,196,395	8,112,381
New York	260,879,412	261,920,256
Total exports	378,816,848	332,716,280

PENNSYLVANIA.

A dispatch to the Pittsburg *Telegraph*, dated Washington, Pa., September 12th, says: Yesterday afternoon, at a depth of 2400 feet, the drill was stopped at the Gordon well, and when the drill was drawn a heavy column of oil shot high above the top of the derrick. For the twenty-four hours ended at noon to-day, the flow was something over one hundred barrels. The engine and boiler from the McNerry well have been removed to the Gordon, which will be packed as soon as possible. The West Virginia Oil Company, with which the Vandergrifts are connected, has leased the Enoch Wolf farm, near this borough. It has also sub-leased from other parties large tracts near West Middleton.

GENERAL MINING NEWS.

ALASKA.

A correspondent of the White Pine (Nev.) *News* writes from Sitka, as follows: Just at present, the mines of this country, especially the gold mines, are attracting more attention than any thing else. For several years past, placer mining along the Stikine River, and about Juneau and Sitka, has been quite profitable to the few engaged in it. Within the last year, however, special interest has been excited in developing the quartz lodes that occur in the neighborhood of Sitka, and especially those of Douglas Island, near Juneau. Here I found, to my great surprise, what is said to be the largest quartz mill in the world. The Treadwell mine, which has been quietly worked for two or three years, now runs day and night 120 stamps and 48 concentrators. The amount of ore crushed daily runs up to 300 tons. The quartz crushed assays from $8 to $20 a ton, and the sulphurets obtained from concentrators will give from $80 to $150. The ledge that crops out from the surface is over 400 feet in width, and of unexplored depth and length. A tunnel has been run into the side of the hill where the ledge occurs, to a distance of 430 feet, and a vertical shaft has been sunk to meet it. These show ore in sight sufficient to last the mill, now running, for years to come. The ore is low in grade, it is true, but it is milled so cheaply that it pays handsome dividends. The machinery is run by water-power obtained from the mountain streams near by, and it is estimated that the milling does not cost more than $1 or $1.50 a ton. Only eight men are engaged in the mill proper, and I was told that six men would be sufficient to do the work. Besides the stamps and concentrators, there are large revolving cylinders in all adjacent buildings for the sulphurets, and numerous large chlorination-vats for eliminating the gold from the ore after it is roasted. In another building hard by, are two or three large retorts, where the gold is separated from the mercury, after which it is melted and cast into large bars or bricks. The steamer that sails to-morrow carries to San Francisco upward of $100,000 in gold bricks, as the result of the past month's cleaning up. The owners—a few California capitalists—say they have "a good thing, and are going to hold on to it." The claims adjoining the Treadwell mine are said to be equally valuable, and are only waiting the advent of capital to develop them.

ARIZONA.

ARIZONA PRINCE.—This copper company's smelter started up September 17th, but with poor results. It is said that the man in charge of the construction of the smelter has left the country.

CATARACT MINES.—A correspondent writing to the Flagstaff *Champion* gives the following description of these mines :

Previous to the advent of the Atlantic & Pacific Railroad through Northern Arizona, the Cataract mines were comparatively unknown ; but since its completion, it places them within easy approaching distance from Ash Fork, the nearest point. The ore of the district crops out in plain view along the whole course of the cañon from Bridal Vail to its junction with the Grand Cañon of the Colorado. It is what is commonly called a blanket vein, lying perfectly flat. It is a true carbonate ore in every sense of the word, and it is only in that part of Arizona that it is found in any quantity. The ore of the Cataract ledge has always, until recently, been universally supposed to be an extensively low-grade mineral—so low, in fact, that it was thought impossible to derive profit from it, but Mr. A. G. Oliver, of our city, has demonstrated to the contrary. Messrs. Reese & Co., of the Cataract mine, being unable to make a test run of their ore, Mr. Oliver agreed to furnish every thing necessary for the extraction of one car-load, and agreed to pay all charges for transportation to San Francisco, the only recompense expected being remuneration for supplies and money advanced, and when the returns came, it created no little surprise when it was announced that the average run of the whole car-load was $67 a ton. Since the above became known, there has been a large exodus from Ash Fork ; so much so, in fact, that the town is about depopulated.

OLD DOMINION.—One of the furnaces was blown in on September 1st, and is smelting Old Globe ore with satisfactory results. The other furnace will probably be fired about October 1st, when the shipment of copper will be largely increased.

CALIFORNIA.

The Supreme Court has rendered a decision in bank refusing to interfere with the Superior Court of Yuba County in punishing the hydraulic miners who refused to obey its orders. The decision reads as follows : "Hedges *et al vs.* Superior Court of Yuba County. Application for a writ prohibiting the respondent from proceeding in the matter of an alleged contempt committed by the petitioners. An injunction had been issued and served restraining a corporation, its officers, agents, superintendents, managers, servants, and employés from the commission of certain acts. The affidavit on which the contempt proceedings were based did not in terms state that the petitioners herein were officers, agents, superintendents, managers, servants, or employés of the corporation ; but it did state that they had full knowledge of the issuance, service, and effect of the injunction, that they worked the mine of the corporation, and that they did the acts complained of in violation of the injunction and in contempt of the authority of the court issuing it. We can not presume, for the purpose of issuing the writ prayed for, that the petitioners went upon the ground of the corporation without its authority and committed a trespass, and worked its mine "with a high hand ;" but rather, that they went in and worked the mine with the consent and approbation of the owner—that their operations were permitted, if not approved and authorized. Tested by the rules of law as to a writ of prohibition, we think the affidavit sufficient. Writ denied. MYRICK, J.

We concur. Morrison, C. J. ; McKee, J. ; McKinstry, J.

BODIE DISTRICT.

The Bodie *Free Press* of September 7th reports as follows :

STANDARD.—The work of retimbering the shaft and 400 station is progressing favorably ; this work has prevented the raising of ore, and consequently no men have been employed in drifts below the 325 level. We expect to so far complete the repairs as to resume the raising of ore on or before the 15th inst. Total men employed, 40.

MONO.—Began hauling ore to the mill September 7th. Eleven men employed.

BULWER.—The superintendent reports for the week ended September 7th as follows : The uprise from main north drift, 200-foot level, has been advanced 28 feet during the past week. The west cross-cut from uprise No. 2, south drift, which was started on the 31st ultimo, has been driven 35 feet. The ground at this point is very favorable for progress, and we hope to reach the west vein on the 14th inst. The ore in the main vein has improved in quality during the week, assays averaging $9.83 a ton. We are now up 103 feet, and hope to get good milling ore in the next 50 feet. Nine men employed.

COLORADO.

The Leadville *Herald* reports as follows :

ADAMS.—During August, this company shipped between 1200 and 1300 tons of ore to the La Plata smelter. The mine of the company continues looking well, and both the Moyamensing and Brookland shafts are rapidly sinking to greater depth.

CARBONATE HILL MINES.—The prospects for the early draining of the deep mines on Carbonate Hill are quite propitious at present. Mr. Eben Smith, the manager of the Henriett and Maid of Erin mines, has decided to sink the Maid of Erin shaft to greater depth. The execution of this plan implies the opening of the second or lower ore zone of Carbonate Hill, and the draining of the lower levels in the Henriett mine. The task is not an easy one, and will prove expensive but at the same time it will result in opening up extensive known ore-bodies, whose development will add materially to the resources of some of the Carbonate Hill mines. The openings extending from the lower

portion of the Henriett incline are on the same vein as those of the McHarg shaft, of the Morning Star consolidation, and as soon as Mr. Smith begins pumping water from the properties under his control, Mr. Booraem, manager of the Morning Star consolidation, will put the large pumps in the McHarg shaft into operation. The Henriett and McHarg pumps, with the assistance of the Brookland and Wolf Tone pumps, will soon free of water the northern portion of Carbonate Hill. The draining of these mines will be followed by the opening of some very large ore-bodies, as the Henriett and McHarg workings both disclosed fine ore-breasts at the closing down of the mines. The ower workings of the Henriett at the time of the flooding showed several faces of ore, from five to fourteen feet in hight, and there is little doubt but that as soon as work is resumed on this property a large daily product of fine ore will ensue. When the McHarg shaft suspended operations, the drifts and stopes contiguous showed many fine ore-faces, and numerous large lots of ore were shipped from these openings averaging 50 per cent in lead and nearly 20 ounces in silver to the ton. As soon as the water can be lifted from the Henriett and McHarg mines, the large bodies of desirable smelting ores in these properties will become available, and a greatly increased quantity of lead ore will be furnished to our smelter. Soon after the pumps in the Henriett and Morning Star mines are started up, Mr. Booraem will start the Cornish pump in the deep upper shaft on the Evening Star, and make another attempt to sink the shaft to the supposed lower ore plane.

CHRYSOLITE.—A lot of ore is roasting in heap preparatory to treatment at the company's mill. The operation is an experimental one.

DENVER CITY.—Some ore that consisted of a hard dark brown iron carrying considerable calc-spar and very rich in chloride of silver was recently secured from a pocket, but, unfortunately for the mine, did not occur in a large body, as in the Forest City mine. The prospects nevertheless are very good, and the property is making more than expenses, which are very heavy, owing to the amount of prospect-work under way and the great quantity of water that it is necessary to handle. Since resuming work in this property last winter, Mr. Bunson has driven many hundreds of feet of levels and winzes and rises, and yesterday the final shot was fired that connected the Denver City with the Lee Basin shaft. The work of connecting the Lee Basin shaft with the Tip Top shaft will be begun in a few days. Mr. Bunson feels assured that he will experience no difficulty in handling the water of the Tip Top, as he is at present taking care of the water in the Lee Basin shaft with only one pump, the plunger to one of the pumps undergoing repairs.

EVENING AND MORNING STAR.—The products of these mines during the past month have been fair and promise even better for the future, as the price of iron ore is advancing. Any material advance in this class of ore will induce these mines to increase their production, and as both show extensive resources in this class of ore, a large output may be expected. During the month of August, the Evening Star mine shipped 479 tons of iron ore, and 118 tons of lead and silver ore. The iron ore shipped by the Evening Star usually runs well in silver—from 10 to 18 ounces—in addition to carrying a large excess of iron, and frequently returns a greater net price per ton than much argentiferous lead ore mined in this district. The ore sales of the Morning Star Consolidated Mining Company, for August amounted to 398 tons of lead ore and 497 tons of iron ore, making a total of 895 tons.

ROBINSON CONSOLIDATED. — Shipments during August aggregated about 45 cars, nearly 500 tons of ore, averaging over 60 ounces in silver per ton. The ore is all extracted on royalties, and 25 men are employed in the mine. This force is soon to be increased to 50 or 60 men. The manager, Mr. Charles Moore, has been engaged for some time past preparing to drain the flooded portions of the mine, and yesterday began lifting water. A 500-gallon bucket and a small steam-pump are employed. These appliances it is thought will easily conquer the water and give the engineers access to a large pump, at present submerged in the lower workings. With the opening of the lower levels of the Robinson, extensive ore resources will be placed at the disposition of the management, and increased shipments will follow. The ore from the twelfth to the fourteenth levels is, it is true, not of as high grade as that now extracted, but it is in greater quantity, making it equally profitable working.

SILVER CORD.—The ore product of this mine during the month of August reached 1450 tons. The prospects for a large production during September are not very flattering, as the efforts of the management are directed principally to development-work. Large bodies of sulphide ore have been disclosed in the Cord in the past sixty days, and it has become necessary to open new working avenues in order to extract this ore economically. These bodies of sulphide ore are situated southwest of the Ruby shaft, and an incline is now advancing from the level connecting the Cord incline with the Ruby workings. As soon as this incline encounters the ore, the product of the mine can be increased, and more profitable work anticipated.

SMALL HOPES.—Every thing continues working satisfactorily, and the fixed output of the mine, 2000 tons a month, is maintained with perfect ease. A shaft-house is building and other surface improvements are making at the Carey shaft. This shaft is to be provided with a cage. The shaft penetrates a large ore-body, and is expected soon to contribute largely to the product of the Small Hopes Company's mines.

SOVEREIGN.—The magnificent new concentrating mill of the Sovereign Gold Mining Company, at Montgomery, unquestionably the finest and best concentrating mill in the State, is now in successful operation. The mill handles nearly 100 tons of ore a day, producing great quantities of high-grade concentrates. Seven or eight large ore teams are hauling ore from the company's mines to the new mill. The establishment is already overcrowded with the product of its jigs, although less than a fortnight has elapsed since the machinery was put in motion. Four or five more teams have been ordered to assist those already moving ore and mill products. The company is also running a twenty-stamp quartz mill on free-milling gold ore.

LEADVILLE'S PRESENT ORE PRODUCT.—*Mine, Stack and Rail* says: The ore shipments from Leadville during the month of August have averaged from forty-five to fifty cars a day, say forty-seven carloads at twelve tons—a tonnage of 564 tons of ore, including iron. Allowing a consumption of 450 tons by Leadville smelters, the total consumption and shipments out of Leadville and vicinity ores is fully 1000 tons a day. This does not include the milling ore used daily at the various mills of Leadville. All this ore, before it can be milled, smelted, or shipped, must be mined and transported, and a large number of men is necessarily employed thereat. Leadville remains, therefore, the foremost camp of the State.

PELICAN-DIVES.—Thirty-five men are employed on the Pelican-Dives mine, and four jigs are at work on ore from the stopes above the main level. To perform this work requires seven men. The principal amount of ore, however, is extracted from the level next below, where a streak of mineral, ranging from 10 to 24 inches, is opened, and upon which six men are employed. In the main level, 12 men are at work. About 10 men are leasing in different localities of the upper levels, and have several small streaks of ore. The mine generally is looking much better than it has for several years. The output of ore is improving, as well as the quality of the mineral, which has increased during the past twelve or fifteen months from an average of about $75 or $80 to over $90 a ton. During the year 1884, the mine produced 380 tons of ore, valued at $33,000. The product for 1885, at the present rate, will be nearly $40,000. The yield for the past four months has been as follows: May, over 45 tons; June, over 40 tons; July, 46 tons; August, 45 tons.

A NEW SMELTER FOR ASPEN.—The Rocky Mountain *Sun* says that capitalists have secured the Late Acquisition and Monarch mines, at a cost of $125,000, and will erect a smelter to treat the ore.

DAKOTA.

CALEDONIA.—This company has sixty stamps running. The bullion produced and shipped to Messrs. Laidlaw & Co., New York, during the month of August (22 days' run), was 1285 ounces. As the stopes and headers advance in the mine, the ore continues to prospect well.

FATHER DE SMET.—The latest official advices are as follows: Fourth level uprise has been connected with third level, the distance apart being 110 feet. The ore-body has been found to extend about 50 feet below the third level, and is a very promising outlook for this part of the mine. The remainder of the mine shows no particular change. The ore is running pretty well, and ought to give a good result on clean-up day.

MICHIGAN.

COPPER MINES.

The products of the reporting mines in August were as follows:

	Tons.	Pounds.
Calumet & Hecla	2575	1285
Quincy	335	915
Atlantic	205	.....
Franklin	188	1000
Huron	102	400

HURON.—The rock recently encountered in several of the lower openings north of No. 6 shaft, and also south of No. 8 shaft, has materially improved.

PEWABIC.—A dispatch, dated Cincinnati, September 15th, says: Justice Stanley Matthews, of the United States Supreme Court, to-day heard arguments upon an application of the plaintiffs in the case of T. H. Mason, William H. Smith, and Sullivan Ballou, of New York, against the Pewabic Mining Company and others, of Boston, for the appointment of a receiver and the sale and distribution of the property of the original Pewabic Company, consisting of copper mines and plant in Houghton County, Mich., and valued at $500,000. The claim of the plaintiffs is that, when the company expired by limitation, the defendants formed a new company and transferred to it the property of the old company in violation of the rights of other stockholders.

TAMARACK.—The Torch Lake *Times* says that this mine is getting into shape for producing. The management is engaged in connecting some two or three levels near the bottom of the mine, and cages for hoisting purposes will be put in soon, which will greatly facilitate the working of the property.

IRON MINES.

The following statement, published by the Marquette *Mining Journal*, shows the amount of iron ore and pig-iron shipped from the lake ports of that district for the season, up to and including September 9th:

	Gross tons.
Marquette—Iron ore	489,645
L'Anse—Iron ore	19,136
Pig-iron	4,513
St. Ignace—Iron ore	66,412
Pig-iron	3,928
Escanaba, Marquette District—Iron ore	378,099
Menominee District—Iron ore	491,447

COLBY.—The Bessemer *Explorer* says: The last week's output, ended August 30th, was 346 cars from both veins, making a shipment in tons of 6920. This amount, taken together with the three previous weeks' work, makes a grand aggregate of over 20,000 tons for the first month, and every ton of it was taken from the mine and not from a stock-pile. Comparing this first month's output of the infant Colby with a few of the first years of the ancient Superior's production, we do not find such a difference as one would suppose. The total number of tons produced from the Superior for the year 1859, or the second year of its discovery, was 24,668, less than 5000 tons more than the Colby's first month's output. In 1861, an output of 25,195 tons was attained, and four years later, in 1865, the total was 50,201 tons, but little over double the amount now credited to the Gogebic's large producer. Looking at these figures and knowing that both mines were worked under circumstances nearly equal, we feel warranted in saying that the Colby's first month's production will by far exceed the output of any other iron mine in the world for its first month's work.

MONTANA.

The Butte *Miner* reports the following:

ALICE.—The new hoisting machinery is working and runs as smoothly as any hoisting-engine ever put in action. The work of raising the hoisting-works and putting on the new roof has begun, and will be pushed to completion as rapidly as possible. The Alice mine never looked better than it does at present. The stopes on the 300, 400, and 600-foot levels are looking unusually well, and are producing the usual quantity of ore. The south cross-cut on the 800-foot level is in 80 feet from the shaft, and has to be carried in 100 feet more before the vein is encountered. The north cross-cut on the same level is in 60 feet, and will have to be driven 150 feet more before the ledge is cut. In about two weeks, the new double-deck cages will be in operation at the Alice. The two mills are working to their full capacity, and every thing is running in a highly satisfactory manner. The mills produced over $100,000 worth of bullion in July. The affairs of the Alice Company were never in a better condition than they are at present, and Superintendent Hall thinks the

company has many long years of prosperity before it. The Magna Charta mine looks exceptionally well—in fact, better than ever before. The stopes and drifts on the 100, 200, and 300-foot levels are looking grand, and the usual quantity of ore is extracted from these points. The recent strike in the 300-foot level is extending east and is improving in size and in the quality of its ore as it goes east. The 400, 500, and 600-foot levels are opening up for work. It will be a long time, however, before stoping will be started at these points, owing to the fact of there being so much ore in sight on the upper levels. The work of cutting the south station and running the north cross-cut on the 700-foot level, is going bravely on. The Alice Company has a very valuable property in the Magna Charta mine.

MOULTON.—Superintendent Clark says that this mine is looking about as usual. The usual quantity of ore is produced, with no perceptible difference in the supply. The work of sinking the main shaft below the 500-foot level has begun, and no trouble is experienced with water. The winze on the 500-foot level is going down ahead of the shaft. Every thing in and around the mine and mill is working in a very satisfactory manner.

PARROT.—This mine is holding its own in fine shape. Over 300 tons of ore are taken out daily, and yet there is enough mineral in sight to keep this up for nearly a year and a half. The shaft is going down as rapidly as possible.

NEVADA.

EUREKA CONSOLIDATED.—Superintendent F. Robbins reports as follows on the 6th inst.: During the past week, we have hoisted 242 car-loads of ore from tributers. There is nothing new to report. During the past eight days, the furnace has produced 800 bars of bullion, 44 tons averaging nearly $257 a ton. Work on the new furnace is going on satisfactorily. The roast of speiss is still burning. It is the intention of the company to put its pumping machinery in perfect order and pump the water from the deep shaft. When the mine was drowned out about three years ago, they had found the vein on the lower levels, and it is thought that by working these the mine can be made to pay as well in the future as it has done in the past. It will probably be six months before any thing definite will be known.

COMSTOCK LODE.

The Virginia City *Chronicle* reports the following:

CHOLLAR.—At the croppings, one shift has been employed for several weeks in retimbering and repairing the drifts, but finished up September 3d, when work was entirely suspended and the upper levels shut down. No further work will be prosecuted there until facilities can be obtained for crushing ore, of which there is a vast deposit between the surface and the 600 level.

CONSOLIDATED CALIFORNIA & VIRGINIA.—Work in the southwest drift on the 1650 level, started from the uprise from the 1700, has been discontinued, and the opening closed with an air-tight bulkhead. This course was decided upon after consultation with the president of the company, Charles H. Fish, who was on the Comstock during the week and inspected the situation in the mine, and became convinced that the foul gas that has recently caused some trouble and threatened seriously to interfere with operations on the 1700 and Jones lease, was tapped in driving this drift through the old workings, and therefore it was thought best to discontinue explorations in that direction. The face of this opening, at the time they suspended operations, was still 500 feet distant from the point they were driving for. From the 1750, the usual daily average of 130 tons of ore is stoped out between that level and the 1600. The assay value of ore taken out for the week is a little below that extracted the week previous. The shipments to the Morgan mill during the week aggregate (?) 600 tons, the assay value of which is given at $12.96 a ton. Under the Jones contract, the number of tons shipped to the Eureka mill during the week foot up 342, the assay value of which is given at $11.36 a ton. The daily output of ore from this part of the mine will soon be increased to the old standard of 140 tons. The daily output from all parts of the mine at present is about 180 tons. The repairs to the Consolidated Virginia shaft are rapidly nearing completion, and they will soon be ready to raise all of the ore taken out under the Jones lease through that opening.

CROWN POINT.—The repairs to the machinery and the overhauling of the boilers have occupied a longer time than anticipated. They are now rapidly approaching completion, however, and work will soon be resumed in both the Crown Point and the Belcher.

HALE & NORCROSS.—The southeast drift from the 3125 level of the deep winze is making good headway, and is skirting along the eastern edge of the vein. The material in the face consists of bunches of ore, amethyst quartz, and a few clay seams The quartz is strongly mineralized, giving good assays. They are driving rapidly ahead to meet the drift from the combination shaft. After the connection has been made between the deep winze and the shaft, the air will be used for ventilating purposes that is now required to supply the compressor, to drive the hoisting-engine in the deep winze station.

JUSTICE.—From the south end of the Justice, below the 350 level, 25 tons of ore are daily extracted through the west drift, and raised to the surface through the Woodville shaft.

KENTUCK.—The regular daily shipments of ore to Dayton by teams continue, averaging about 200 tons a week.

OPHIR.—The repairs to the old Mexican shaft have been completed, and it is now in good order and retimbered from the floor of the Central tunnel, on the 150 level, down to the point where the uprise was started from the south drift on the 500 level. On the 350 level of the shaft, a station has been excavated and a west drift started for the old stopes. They expect to strike the vein at a distance of 60 feet west of the shaft, where there is a large deposit of ore that was left behind in the stopes at a time when the cost of milling it was much higher than at present. This ore-deposit will be reached in a week or ten days, when the Ophir will again rank among the ore-producing mines of the lode.

YELLOW JACKET.—Twenty car-loads (160 tons) of ore are shipped daily to the Brunswick mill. This ore is extracted from between the 400 and the 1300 levels. When the Crown Point starts up, a force of men will be sent down that shaft to continue the explorations on the 1700 level, which is 200 feet below the bottom of the Jacket incline.

OHIO.

A dispatch from Akron, dated September 13th, says that the people in the vicinity of Boston and Peninsula on the line of the Valley Railroad, about half-way between this city and Cleveland, are much interested in recent discoveries of minerals of various kinds. Specimens of silver, zinc, and lead, coal, and roofing slate have also been found, and people who own the land are holding it at fabulous prices.

UTAH.

CHRISTY.—The late heavy rains washed out the water-ditch, necessitating a closing down of the mill for a day and a half. Every thing is running smoothly again, and between forty and forty-five tons of ore are crushed every day. A full force of men is at work in the mines.

HORN-SILVER.—Dead-work goes on monotonously, with but little prospect, before the first of the year, of tapping the ledge and opening up the vast ore-body that lies below the 700 level. It is believed that, as soon as the Milford Reduction-Works are ready to operate, a force of miners will be put into the cave, with the view of handling that vast mass of mixed ore and waste. Another shaft contract has been let, and this main artery, now 1200 feet deep, will soon be 1300, with drifts to connect it with the ledge at every 100 feet, so that, when live work is resumed, the mine will be in a splendid shape to operate. By the present system of contract work, shafts and drifts are run at an exceptionally low price; the average cost being $16 a foot for a perfect three-compartment shaft and roomy drifts.

WISCONSIN.

ASHLAND.—Shaft No. 2 is down in excellent ore, and the miners have began to drift and raise ore for shipment. The work on shaft No. 1 is also pushed, and some of the finest ore yet shipped taken out. Work will be pushed at this mine for all it is worth during the rest of the season and coming winter.

GERMANIA.—One of the new shafts was bottomed in ore, September 9th, the first blast bringing out four and a half tons of as good Bessemer ore as ever glistened in a stock-pile.

Both of the above mines will resume shipments, which have lately been suspended.

BULLION PRODUCTION FOR 1885—SPECIAL OFFICIAL REPORTS.

MINES.	States.	Month of August.	Year from Jan. 1st, 1885.
		$	$
Adams, S. L.	Colo.	35,000	241,103
Alice, G. S.	Mont.	109,326	658,562
Belmont	Nev.	——	10,003
Bodie, G.	Cal.	.....	**17,967
Boston & Montana, G.	Mont.	——	270,285
Christy, S	Utah	——	147,663
Chrysolite, S	Colo.	6,057	44,710
Colorado Central, S.	Colo.	23,909	159,616
Consolidated Bobtail, G.	Colo.	.....	41,228
Deadwood-Terra, G.	Dak.	39,373	293,889
Derbec Blue Gravel, G. S.	Cal.	9,273	95,181
Essex, G S	N. S.	.....	6,474
Eureka Consolidated, S. L.	Nev.	——	10,266
Father de Smet, G.	Dak.	33,886	230,474
Freeland, G. S C	Colo.	30,007	192,225
Grand Prize, S G	Nev.	26 725	206.318
Granite Mountain, S.	Mont.	75,300	688,700
Hall-Anderson, G.	N S	1,280	7,741
Head Center & Tranquillity	Ariz.	——	85,396
Hecla Consolidated, G. S. L. C	Mont.	.....	*501,849
Helena, G. S. L. C.	Mont.	.....	473,584
Homestake, G.	Dak.	126,472	830,679
Hope, S.	Mont.	15,600	107,446
Iron Silver, S. L.	Colo.	.....	382,006
Kentuck, S.	Nev.	.....	†2,941
Lexington. G. S.	Mont.	73,294	578,096
Montana, Limited, S. G.	Mont.	74,000	573,317
Moulton, S. G.	Mont.	.....	310,792
Mount Diablo, S.	Nev.	.....	325,231
Navajo, S.	Nev.	——	82,894
New Hoover Hill, G. S.	N. C.	8,750	52,319
New Pittsburg, S.	Colo.	——	9,594
North Belle Isle, S.	Nev.	——	2,118
Ontario, S	Utah	114,867	1,228,977
Oxford, G	N. S.	2,999	7,860
Plymouth Consolidated, G.	Cal.	73,157	649,006
Rooks, G.	Vt.	——	28,383
South Yuba, G.	Cal.	——	1,168
Standard Consolidated, G.	Cal.	24,220	102,698
Stormont, S.	Utah	14,442	97,313
Syndicate, G	Cal.	.....	**62,327
Tombstone, G. S. L.	Ariz.	61,629	403,875
Total		.....	10,305,138

G., gold; S., silver; L., lead; C., copper. Silver valued by the different companies from $1@$1.29 per ounce; gold, $20.67. *Not including value of lead and copper. †Royalty. ‡Net. —— No shipments during month mentioned. ** Not official.

MARKETS.

NEW YORK, Friday Evening, Sept. 18.

Silver.

DATE.	London. Pence.	N. Y. Cents	DATE.	London. Pence.	N. Y. Cents.
Sept. 12	47½	103	Sept. 16	47¼	102¼
14	47½	103	17	47¼	102¼
15	47 5-16	102¾	18	47¼	102¼

The absence of demand for silver for India has caused the marked decline in London, induced mainly by apprehensions of suspension by the incoming Congress of the coinage of the standard dollar.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank lost £77,265 bullion; and the proportion of its reserve to its liabilities was raised from 41 11/16 to 42½, against 45 13/16 per cent at this date last year. The weekly statement of the Bank of France shows gains of 621,000 francs gold and 1,895,000 francs silver.

Copper.—The copper market has been very dull, and prices are a trifle lower. Lake is pretty well held at 10·95@11·05c. Baltimore copper was this morning offered at 10¼c., with 10c. bid, and best brands of Arizona copper are held at 10½@10⅝c. Orford is quoted at 10¼@10·05c.

Chili Bars are quite weak in London, and the price quoted is the lowest ever known. Cables to the Metal Exchange quote Chili Bars at £41 7s. 6d. Best Selected is quoted at £47.

Tin.—The market has been a little more active than last week, and the quotations are 20·50c. bid, 20·62½c. asked for Spot, and 20·25@20·62½c. for futures. The cable to the Metal Exchange reports it to-day at £91 15s. for Spot.

Lead.—There have been about a thousand tons sold on a basis of 4¼c. for Common, 4·30c. for Refined. The market is quiet throughout and steady, there being no particularly strong demand, but just a quiet business with firm prices. In London, Soft Spanish Lead is quoted at £11 2s. 6d.

Messrs. John Wahl & Co., of St. Louis, telegraph to us as follows to-day:

There is a slight improvement in the demand over the previous week. The sales for the week sum up to

300 tons Chemical at 4·12½c. and 200 tons Refined at 4·15c.

Messrs. Everett & Post, of Chicago, telegraph to us as follows to-day :

Our market is quiet. The stocks in the hands of holders are limited, and there is scarcely any thing offered. Prices are nominally 4·15c. and 4·17½c.

Spelter and Zinc.—The market keeps rather quiet, although some small sales are reported. Prices remain strong, and we quote 4·35@4·50c. for Domestic and 4·85@4·95c. for Foreign. Foreign Silesian Spelter is quoted to-day at £14 7s. 6d.

Sheet-Zinc continues to be in good demand, and is stronger at 5½@5¾c.

Antimony.—Hallett's is unchanged at about 9c., while Cookson's is stronger, owing to scarcity. It is quoted at 9¾@10c. In London, £36 is asked for Hallett's.

Bismuth.—Worth from $2@$2.25 a pound.

Aluminium.—$8@$9 a pound ; 10 per cent Cowles Aluminium Bronze Ingots, $1 a pound ; 7 per cent Aluminium Bronze, 78c. a pound ; 5 per cent Aluminium Bronze, 56c. a pound ; 2½ per cent Aluminium Bronze, 34c. a pound ; Aluminium Silver Alloy, composed of 1 part of 5 per cent aluminum bronze and 2 parts nickel, 75c. an ounce.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Sept. 18.

American Pig.—A better demand exists for pig-iron, and the sales this week have been quite large. Stocks in the different furnaces are very much depleted, and there is every prospect for a good business in the future. Prices remain about the same, and we still quote $18 for No. 1 X ; $16 for No. 2 X ; and $15@$15.50 for Gray Forge.

Scotch Pig.—Scotch pig maintains its advanced prices, which is wholly owing to the speculation in Glasgow. This speculation is the outgrowth of glowing reports of the boom in business in this country. We quote Coltness, $19.50@$19.75 ; Summerlee, $19 @$19.50 ; Glengarnock, $18.50@$19 ; Dalmellington, $18@$18.50 ; Eglinton, $17.50@$18.

Bessemer Pig and Spiegeleisen.—Prices are unchanged at $16@$17 for No. 1 Domestic, and $18@ $19 for Foreign.

Spiegeleisen, 20 per cent manganese, sells at $25@ $25.50 ; and Ferro-manganese, 60 per cent, $50.

Steel Rails.—There is a large inquiry for steel rails, and the market is quoted very firm. The ruling price is $30, and no orders have been placed lower than this figure for the past ten days. We hear of sales by Eastern mills of about 10,000 tons.

Merchant Iron.—Business has been rather quiet this week, and prices remain the same. We quote Common at $1.50@$1.55, and Refined at $1.75@ $1.90.

Plates.—These are also quiet, but remain firm. We quote, 1·95@2·1c.

Structural Iron.—There has been a fair business done, but nothing of special interest has occurred to report. Angles are quoted at 1·95@2·1c. ; Tees, at 2·25@2·3c. ; Beams, 3c.

Old Rails.—Old Rails are firm and in good demand. For early delivery, $17 is asked, while $16.50 is asked for future delivery.

Old Wheels.—$14.50@$15.

Philadelphia. Sept. 18.

Pig-Iron.—Importers of pig-iron have secured a few orders for late fall delivery. Three or four lots arrived during the week. The American iron market is weaker than it was a few days ago. The inferior irons have dropped. Makers have taken alarm over the falling off of sales, and have given up the attempt to advance prices. A few makers of standard brands who were successful in selling their output for the next sixty days are holding prices nominally where they were last week. They will find it no easy matter to dispose of their product at an advance of 50 cents, which a week ago they thought would be permanent. They live in the hopes that the market will take another turn. The mill-owners are not buying more iron than will see them through the orders they have taken during the past two or three weeks. The demand is altogether for actual requirements, except in a few cases where supplies have been purchased for the rest of the year. A few lots of Virginia irons have been ordered, besides old running contracts. There is no particular demand in this market at present for Alabama irons. Offerings are still made that may result in business, especially for pipe purposes. The situation is not quite so encouraging, and there are fewer large contracts to report. There is less inquiry, but more anxiety upon the part of furnace-men to book orders. The furnaces blowing in are offset by furnaces blowing out for repairs. The net result is about the same as regards production. There is no prospect of any improvement in bar iron, and hence mill men are unable to pay any thing more for forge. A good many of the large foundries are working slack, and therefore will not buy iron for the future. The Southwark Foundry is well supplied with orders ; the stove works are generally filled up, but in most cases have their requirements filled. Forge averages $15.50 ; No. 1 Foundry, $17.50@$18.50. The special brands are doing well, and will not feel the effects of the decline.

Bessemer Iron.—Several inquiries were made from Bessemer iron brokers this week, but without any important business resulting. Quotations range from $19@20. Spiegeleisen is quoted at $25.50@$26.50, and $25 is offered. Several lots of Scotch iron were sold to the founders. The foundries generally are working about two thirds time, although here and there large works are running full.

Muck-Bars.—Quotations are $26.50@$27, without any thing of special interest to report.

Manufactured Iron.—A little spurt of activity was imparted to the trade a few days ago by the demand created by car-builders, and there are several inquiries to-day for common iron on the market at $1.40@ $1.50. The demand is very fair, but there is less interest felt this year than last. The local mills are all busy. The managers report less business done last week than the week before. Best Refined iron is $1.70 @$1.80 ; Medium, $1.60 ; Common, $1.40@$1.50. There is too much competition in business to look for any departure from these figures.

Sheet-Iron.—All of the sheet-iron manufacturers report a further improvement in business at the slight advance made.

Nails.—All of the nail-makers report a good demand for nails at $2.15@$2.25, and some of them a further advance not far off, especially if no signs of resumption are shown in the West. The mills are all full of orders, and anxious to book as much business as possible for winter delivery. Buyers are pursuing a rather cautious course, on account of the uncertainty of the Western nail market. Stocks there are altogether broken, and manufacturers depend largely on Eastern mills. Building is hurried along all through the territory supplied from this market, and store-keepers are inquiring best prices for winter stocks.

Plate and Tank Iron.—No complaint is made as to the character of the business this week, and the volume of business is increasing. Manufacturers desire to nurse this trade as much as possible, and therefore are running double turn in some cases.

Slabs.—Domestic Slabs are selling at $31@$32. There is considerable activity in this department of the iron trade, and mills supplying slabs are quite full of orders.

Steel.—Merchant Steel mills report a steady demand for all kinds of material, but no improvement in prices.

Wrought Pipe.—The mill-owners report a steady run of small orders for wrought pipe, with excellent prospects for a steady run all winter at the outside card rates. Gas and water pipe are in particularly active demand.

Castings.—A good deal of business has been done during the past week or two in steel and iron castings, and the mills in Eastern Pennsylvania are well booked up with orders. The managers report a very fair outlook for the next sixty days.

Structural Iron.—Angles are 1·90@2c. ; Beams and Channels, 3c. No particularly interesting orders have been placed.

Steel Rails.—If any business has been done for next year at $30, it is not known. There are several buyers that have made inquiries for material for winter delivery, and $30 has been quoted. Small orders have been booked this week at $29. The rush for rails does not keep up, and buyers doubt whether $30 will be paid.

Old Rails.—Spot lots are promptly picked up.

Scrap.—Scrap is moving slowly at $16@$18, according to quality, for selected lots.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Sept. 18.

Statistics.

Production Anthracite Coal for week ended september 12th, and year from January 1st :

TONS OF 2240 LBS.	1885. Week.	1885. Year.	1884. Week.	1884. Year.
P. & Read. RR. Co..	274,508	7,442,374	319,028	7,378,939
L. V. RR. Co.....	149,079	3,811,368	181,996	4,014,150
D., L. & W. RR. Co.	127,189	3,098,430	133,330	3,430,233
D. & H. Canal Co..	97,248	2,447,023	106,407	2,561,834
Penna. RR.:				
N. & West Br. RR.	30,854	816,401	15,113	581,517
S. H. & W. B. RR.	3,919	157,342	608	132,044
P. & N. Y. RR....	9,459	279,515	15,028	275,614
Penna. Coal Co.....	29,967	856,336	37,284	869,960
Penna. Canal Co....	15,678	261,211	14,277	278,514
Shamokin Div., N. C. RR	25,173	660,252	20,098	696,617
Lykens Valley.....	*10,500	347,998	11,986	381,431
Total...	773,574	20,178,249	855,155	20,600,853
Increase..	... ...	... ...	....	.. ..
Decrease	81,581	422,604	....	.. ..

* Estimated.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period :

1880.....	15,603,615	1882.....	19,592,849
1881.....	19,289,700	1883.....	21,818,510

Production Bituminous Coal for week ended September 12th, and year from January 1st :

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1885. Week.	1885. Year.	1884. Week.	1884. Year.
Philadelphia & Erie RR....	78	21,111	.....	.....
**Cumberland Region, Md*.....	65,018	1,898,587	64,510	1,952,080
**Barclay Region, Pa.* Barclay RR.....	5,410	165,594	4,625	209,244
**Broad Top Region, Pa.* Huntington & Broad Top RR.....	2,654	106,635	4,559	134,510
East Broad Top....	.....	.....	.....	.....
Clearfield Region, Pa. Snow Shoe.....	2,043	99,472	3,251	126,218
Karthaus (Keating)	1,165	85,339	2,307	31,832
Tyrone & Clearfield	46,555	2,019,691	57,778	2,167,139
Alleghany Region, Pa Gallitzin & Mountain.....	10,802	360,307	9,543	264,421
Total.....	133,725	4,756,736	146,573	4,885,944

* Tons of 2240 lbs.

WESTERN SHIPMENTS.†

Pittsburg Region, Pa. West Penn RR.....	2,388	157,618	5,069	195,114
SouthwestPenn. RR.	2,205	69,601	1,595	91,202
Pennsylvania RR...	2,960	145,100	3,670	193,790
Westmoreland Region, Pa. Pennsylvania RR...	27,840	818,434	26,750	906,324
Monongahela Region, Pa. Pennsylvania RR...	6,573	188,635	3,050	106,522
Total.....	41,966	1,379,388	40,134	1,492,952
Grand total	175,691	6,136,124	186,707	6,378,896

† Considerable gas-coal shipped East, of which no division is made in report.

Anthracite.

There is a better demand for coal, and prices are firmer all around. The indications are, that the usual fall boom is on. We look for higher prices, temporarily at least, and do not hesitate to advise purchases for sixty days' requirements. It is stated that the Delaware & Hudson Canal Company has advanced its prices, and is asking $3.85 net for stove coal ; that the Lackawanna Company is so short of stove size that it has offered to purchase considerable quantities from other companies ; that the Reading Company has advanced the price of chestnut coal to $3 net alongside, having sold it as low as $2.85 a ton, or about $2.65 f. o. b. Broken and egg are said to be in much better demand. In fact, there is a more cheerful feeling among all shippers, and some anxiety among buyers, who are like a pack of sheep following a leader. Although there has been an improved demand for coal, we do not believe that it is sufficient as yet to absorb the allotted production ; hence stocks are likely to remain at the maximum until a still better demand is reached. The present movement of coal was not unlooked for. In fact, it has been expected for some weeks by many, while there were but very few who did not expect it quite as early as the present time.

Mr. John H. Jones, official accountant, gives the following statement of the anthracite coal tonnage for the month of August, 1885, compared with the same period last year. The statement includes the entire production of anthracite coal, excepting that consumed

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*				$247,500	Sept.	1885	.10
2	Alice, s. c	Mont	10 000,000	400,000	25	*				650,000	Sept	1885	.06¼
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*				330,000	Oct.	1883	.05
4	Atlantic, c	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	280,000	Feb.	1885	.50
5	Argenta, s	Nev..	10,000,000	100,000	100	295,000	July	1885	.10	40,000	Feb.	1880	.20
6	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*				60,000	Nov	1880	.10
7	Bassick, G. S	Colo.	10,000,000	100,000	100	*				400,000	Mar.	1884	$1.00
8	Belle Isle, s	Nev..	10,000,000	100,000	100	120,000	Mar.	1884	.20	300,000	Dec.	1879	.25
9	Belcher, G. S	Nev..	10,400,000	104,000	100	2,186,135	Apl	1883	.25	15,397,000	Apl.	1876	1.00
10	Big B'nd Hydraulic, G	Dak..	1,000,000	200,000	5	*				144,000	May	1885	.03
11	Black Bear, G	Cal..	3,000,000	30,000	100	22,500	Dec.	1884	.25	895,000	May	1883	.20
12	Bodie Con., G	Cal..	10,000,000	100,000	100	275,000	Dec.	1883	.50	1,695,000	Apl.	1885	.50
13	Bonanza Developm't	C&M	3,000,000	300,000	10					135,000	Oct.	1882	.15
14	Bonanza King, Cons.	Cal..	1,000,000	10,000	10	*				185,000	Feb.	1885	.10
15	Boston & Mont, G	Mont	2,000,000	200,000	10	*				310,000	Jan.	1883	.05
16	Breece, s	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
17	Bulwer, G	Cal	1,000,000	100,000	100	20,000	Jan	1885	20	175,000	Jan.	1884	.10
18	Calumet & Hecla, C	Mich	2,500,000	100,000	25					27,350,000	Jun.	1885	7.00
19	Carbonate Hill, s. L.	Colo.	2,000,000	200,000	10	*				80,000	Apl.	1884	.05
20	Caribou Con., S	Colo.	1,000,000	100,000	10	*				50,000	Mch	1880	.10
21	Castle Creek, G	Idah.	100,000	100,000	1					51,000	Oct.	1883	.03
22	Catalpa, s. L	Colo.	3,000,000	300,000	10	*				270,000	May	1884	.10
23	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,710,000	Feb.	1885	5.00
24	Christy, s	Utah	10,000,000	100,000	100					10,000	Jun.	1885	.10
25	Chrysolite, s. L	Colo.	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
26	Colorado Central, s. L	Colo.	3 000,000	300,000	10	*				60,000	Sept	1885	.05
27	Con. Gold Mining, G	Ga..	500,000	100,000	5	*				108,000	Nov.	1883	.02
28	Contention, S	Ariz.	12,500,000	250,000	50					2,587,000	Dec.	1884	.25
29	Crescent, s. L. G	Utah	15,000,000	600,000	25	‡				180,000	Sept	1885	.05
30	Crown Point, G. S	Nev.	10,000,000	100,000	100	2,675,000	Feb.	1882	.25	11,588,000	Jan.	1875	2.00
31	Deadwood-Terra, G	Dak..	5,000,000	200,000	25	*				1,000,000	Jan.	1883	.10
32	Derbec B. Grav., G. S.	Cal..	10,000,000	100,000	100	90,000	Dec.	1881	.10	80,000	Jun.	1885	.10
33	Dunkin, s. L	Colo.	5,000,000	200,000	25	*				220,000	Sept	1884	.05
34	Eureka Con., G. S. L.	Nev..	5,000,000	50,000	100	350,000	Jan.	1884	1.00	4,817,500	July	1882	.25
35	Evening Star, s. L	Colo.	500,000	30,000	10	*				1,400,000	Nov	1883	.50
36	Excelsior, G	Cal..	10,000,000	100,000	100	463,000	Sept	1884	.50	875,000	Oct.	1880	.25
37	Father de Smet, G	Dak.	10,000,000	100 000	100	200,000	Nov	1878	1.00	1,010,000	Sept	1885	.20
38	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun	1871		480,000	Jun.	1885	1.00
39	Freeland, G. S. C	Colo	5,000,000	200,000	25	*				110,000	Sept	1885	.10
40	Fresno Enterprise, G	Cal.	5,000,000	100,000	50			Mch	1881	110,000	July	1882	.10
41	Gem, S	Colo.	125,000	125,000	1					23,750	May	1881	.02
42	Glen, S	Colo.	100,000	100,000	1					7 000	May	1883	.01
43	Gould & Curry, G. S.	Nev	10,800,000	108,000	100	3,856,800	Jun	1885	.40	3,826,000	Oct.	1879	10.00
44	Grand Central, S	Ariz.	1,000,000	100,000	10					625,000	Dec.	1882	.25
45	Grand Prize, S	Nev.	10,000,000	100,000	100	530,000	Nov	1884	.30	495,000	Mar.	1884	.25
46	Granite, S	Colo	125,000	125,000	1					6,250	May	1883	.01
47	Granite Mountain, S.	Mont	10,000,000	400,000	25					300,000	Aug.	1885	.10
48	Green Mountain, G	Cal..	1,250,000	125,000	10	*				212,000	Nov.	1881	.07½
49	Hale & Norcross, G. S	Nev..	11,200,000	112,000	130	4,650,000	Aug.	1885	.50	1,598,000	Apl	1871	5.00
50	Hall-Anderson, G	N. S.	150,000	150,000	1					7,000	Jan.	1882	.05
51	Hecla Con., S	Mont	1,500,000	30,000	50					867,500	Aug.	1885	1.00
52	Hel'a Mg & Red, G. S. L	Mont	3,000,000	600,000	5	*				96,000	Sept.	1885	.04
53	Henriett, L	Colo.		270,000						27,000	Feb.	1883	.10
54	Holyoke, G	Idah.	200,000	200,000	1					52,000	Nov	1883	.02
55	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1878	1.00	2,918,750	Sept.	1885	.35
56	Honorine, S. L	Utah	5 0,000	250,000	2	25,000	July	1883		50,000	Aug.	1885	.05
57	Hope, S	Mont	400,000	8,000	50	*				158,252	Oct.	1884	1.50
58	Horn Silver, S. L	Utah	10,000,000	400,000	25	*				4,000,000	Nov.	1884	.50
59	Idaho, G	Cal..	310,000	3,100	100					3,620,800	Apl.	1885	7.50
60	Independence, S	Nev..	1 0,000,000	100,000	100	320,000	Aug.	1885	.20	225,000	Sept	1879	.25
61	Indian Queen, S	Nev..	250,000	125,000	2					388,750	July	1883	.03
62	Inyo, G	Cal..	500,000	100,000	5	*				45,000	Apl.	1882	.05
63	Iron-Silver, S. L	Co o	10,000,000	500,000	20	*				1,400,000	July	1885	.20
64	Jackson, G. S	Nev.	5,000,000	50,000	100	10,000	Nov.	1880	.20	2 ,000	Apl.	1885	.10
65	Jocuistita, S	Mex.	10,000,000	100,000	100					1,20 ,000	Feb.	1885	.50
66	Kentuck	Nev..	3,000,000	30,000	100	342,000	Nov	1881	.30	1,288,000	July	1884	.10
67	La Plata, S. L	Colo.	2,000,000	200,000	10	*				610,000	Sept	1882	.30
68	Leadville, S. L	Colo.	4,000,000	400,000	10	*				370,000	July	1885	.05
69	Lexington, G. S	Mont	4,000,000	40,000	100	*				565,000	Jan.	1885	2.00
70	Little Chief, S. L	Colo	10,000,00	200,000	50	*				780,000	Mch	1885	.10
71	Little Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				1,050, 00	Mch	1880	.50
72	Manhattan, S	Nev.	5,000,000	50,000	100	150,000	July	1879	1.00	412,500	Aug	1885	.25
73	Marguerite, G	Cal..	500,000	25,000	20					18.750	Oct.	1882	.25
74	Martin White, S	Nev.	10,000,000	100,000	100	1,125,000	Aug.	1885	.25	90,000	July	1879	.30
75	Minas Nuevas, S	Mex.	300,000	100,000	3	*				20,000	July	1883	.10
76	Morning Star, S. L	Colo.	1,000,000	100,000	10					525,000	July	1884	.25
77	Moulton, S. C	Mont	2,000,000	400,000	5	*				140,000	Apl.	1885	.07½
78	Mount Pleasant, G	Cal.	150,000	150,000	1	*				105,000	Mar.	1884	.10
79	Mt. Diablo, S	Nev	5,000,000	50,000	100	137,500	Jun.	1880	2.00	80,000	July	1883	.20
80	Napa, Q	Cal..	700,000	100,000	7					260,000	Jan.	1885	.10
81	Navajo, G. S	Nev..	10,000,000	100,000	100	200,000	Aug.	1885	30	325,000	Feb.	1885	.25
82	N. Hoover Hill, G. S.	N. C.	300,000	120,000	2½	*				7,50	May.	1885	.06½
83	New York Hill, G	Cal..	5,000,000	50,000	100	55,000	Mch	1878	.20	215,000	Aug.	1882	.10
84	New York & Colo., G	Colo.	1,25 ,000	50,000	25					25,000	July	1879	.10
85	Northern Belle, S	Nev..	5,0 0,000	50,000	100	425,000	Jan.	1884	8.50	2,400,000	Apl.	1883	.50
86	North Belle Isle, S	Nev..	10,000,000	100,000	100	115,000	Aug	1885	.10	3 ,000	Aug.	1881	.15
87	Ontario, S. L	Utah	15,000,000	150,000	100					6,650,000	Aug.	1885	.50
88	Ophir, G. S	Nev..	10,000,000	100,000	100	3,902,800	Feb.	1885	50	1,595,000	July	1882	1.00
89	Original, S. C	Mont	1,500,000	60,000	25	*				114.000	Oct.	1884	.05
90	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	25
91	Oxford, G	N. S.	125,000	125,000	1	*				36,000	Apl.	1884	.05
92	Paradise Valley, G	Nev.	10, 00,000	100,000	100	47,000	Mar.	1882	.15	50,000	Oct.	1884	.10
93	Pleasant Valley, G. S.	Cal..	10,000,00	100,000	100	40,000	Mar.	1884	.10	30,000	Dec.	1882	.05
94	Plymouth Con., G	Cal..	5,000,000	100,000	50	*				1,400 000	Aug.	1885	.50
95	Prussian, S. L	Colo	1,500,00	150,000	10					132,000	Jan	1883	.10
96	Quicksilver, pref., Q	Cal..	4,30 ,000	43,000	100					666,000	Feb.	1884	.30
97	" com., Q	Cal.	5,700,000	57,000	100					151,000	July	1882	.40
98	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec.	1862		4,270,000	July	1885	2.00
99	Richmond, S. L	Nev..	1,350,000	54,000	25	*				4,110,587	Aug.	1884	1.25
100	Rising Sun, S	Dak..	750,000	150,000	5	*				52,000	May	1881	.07½
101	Robinson Con., S. L	Colo.	10,000,000	200,000	50					575,000	Nov.	1884	.50
102	Robert E. Lee, S. L	Colo.	5,000,000	500,000	10					100,000	Dec.	1882	.10
103	Rooks, G	Vt..	500,000	50,000	10	*				61,000	Apr	1885	.30
104	San Francisco, C	Cal..	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	1883	.05
105	Savage, S	Nev..	11,20 ,000	112,000	100	5,988,000	Jun.	1885	.50	4,460,000	July	1869	3.00
106	Security L Mg, Mfg	Colo.	1,00 ,000	100,000	10	*				50,000	July	1884	
107	Shoshone, G	Idah	150,000	150,000	1					7,500	Apl.	1883	.01
108	Sierra Buttes, G	Cal..	225,000	22,500	10					1,450,933	Apl.	1885	.25
109	Sierra Bella, S	N. M	1,000,000	200,000	5					30,000	May	1884	.15
110	Sierra Grande, S	N. M	2,000,000	400,000	5					860,000	Sept	1884	.25
111	Sierra Nevada, G. S.	Nev..	10,000,000	100,000	100	5,872,698	Jun.	1885	.25	102,000	Jan.	1871	1.00
112	Silver Cord, G. S. L.	Colo.	5,000,00	500,000	10					225,000	Nov	1883	.25
113	Silver King, S	Ariz.	10,000,000	100,000	100					1,475,000	Sept	1885	.25
114	Small Hopes, Cons., S	Colo.	5,000,000	250,000	20	*				1,437,500	Aug.	1885	.20
115	Smuggler, S L	Colo.	600,000	6 ,000	10					66,700	Aug.	1884	.25
116	Socorro, C	N. M.	250,000	2,500	100					4,000	Mch	1882	.09¾
117	South Yuba, G	Cal..	2,000,000	40,000	50	*				150,000	Oct.	1881	.75
118	Spring Valley, G	Cal..	2 0,000	200,000	1	*				50,000	Jan.	1881	.25
119	Standard, G. S	Cal.	10 00,000	100,000	100					4,400,000	Mar.	1884	.25
120	Stormont, S	Utah	200,000	200,000	1	*				155,000	Nov.	1881	.05
121	St. Joseph, L	Mo.,	1,000,000	100,000	10	*				470,000	Sept	1885	.20
122	Syndicate, G	Cal..	10,000,000	100,000	100		July	1882	.15	8 ,000	Sept	1885	.10
123	Tip Top, S	Ariz.	10,000,000	100,000	100	250,000	Sept	1883	.25	100,000	Nov.	1881	.20
124	Tombstone, G. S	Ariz	12,500,000	500,000	25					1,250,000	Apl.	1882	.10
125	True Fissure, G. S. L.	Utah	1,500,000	150,000	10	*				75,000	Jun.	1883	.15
126	United Gregory, G	Colo.	300,000	300,000	1					42 000	Apl.	1883	.25
127	United Verde, C	Ariz.	3,000,000	300,000	10	*				97,500	Feb.	1884	.20
128	Valencia, M	N. H.	150,000	1,500	100	*				18,750	Apl.	1885	2.50
129	Vizina, S	Colo.	5,000,000	200,000	25	*				140,000	Apl.	1882	.10
130	Yellow Jacket, G. S.	Nev..	12,000,000	12 ,000	100	5,358,000	Feb.	1882	1.00	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			
1	Albion, S. L	Nev..	$15,000,000	150,000	$100	$577,000	July	1883	.50	
2	Allouez, C	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50	
3	Alpha Con., G. S.	Nev..	3,000,000	30,000	100	415,000	Jan.	1885	.50	
4	Alta, S	Nev..	10,080,000	100,800	100	1,926,200	Apl.	1885	.25	
5	American Flag, S	Colo.	1,250,000	125,000	10	300,000	Jun.	1877	.25	
6	Barcelona, G	Nev..	5,000,000	200,000	25	*				
7	Battle Creek, G	Dak.	5,000,000	200,000	25					
8	Bear Creek	Cal..	300,000	300,000	1					
9	Beauce	N. S.								
10	Bechtel Con., G	Cal..	10,000,000	100,000	100	173,500	n.	1883	.10	
11	Belvidere	Cal..		60,000		92,000	b.	1882	.15	
12	Belmont, S	Nev..	5,000,000	50,000	100		Feb.	1885	.25	
13	Best & Belcher, G. S	Nev..	10,080,000	100,800	100	1,597,390	Jun.	1885	.50	
14	Big Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				
15	Black Jack, G	Cal..	250,000	100,000	2½					
16	Bonanza Chief	Mon	1,000,000	1,000,000	1	*				
17	Bondholder	Colo.	500,000	200,000	2½					
18	Boston Con., G	Cal..	13,000,000	100,000	100	170,000	Nov	1883	.25	
19	Boulder Con	Colo.								
20	Bradshaw, S	Ariz.	2,250,000	225,000	10					
21	Buckeye	Colo.	2,000,000	400,000	5	*				
22	" preferred	Colo.								
23	Bull Domingo, S. L	Colo.	10,000,000	200,000	50	*				
24	Bullion, G. S	Nev	10,000,000	100,000	100	4,570,000	July	1885	.25	
25	Bye and Bye	Ariz.	1,000,000	100,000	10	*				
26	Calaveras, G	Cal..	500,000	500,000	1	*				
27	Cal. W'r & M. Co., G	Cal..								
28	Caledonia, S. H., G	Dak.	10,000,000	100,000	100	505,000	May	1885	.15	
29	Castle Creek, G	Idah.								
30	Catskill, S	Nev..	1,500,000	30,000	5					
31	Central Arizona, S	Ariz.	10,000,000	100,000	100					
32	Chapparal	Cal..								
33	Cherokee, G	Cal..	1,500,000	150,000	10					
34	Chollar, S	Nev..	11,20 ,000	112,000	100	816,000	July	1885	.50	
35	Climax	Colo.								
36	Con. Cal & Va., G. S.	Nev.	21,600,000	216,000	100	108,000	Jan.	1885	.20	
37	Con. Imperial, G. S.	Nev..	50,000,000	500,000	100	1,050,000	May	1885	10	
38	Con. Pacific, G	Cal..	6,000,000	60,000	100	165,000	Aug	1885	.15	
39	**Con. Queen Cons, C.	Ariz.	1,400 00	140,000	10	*				
40	Crescent, S. L	Colo.	3,000,000	300,000	10	*				
41	Crocker, S	Ariz.	10,000,000	100,000	100	25,000	Oct.	1884	.25	
42	Crowell, G	N. C	500,000	500,000	1					
43	Coxheath, C	N. S.	500,000	100,000	5	*				
44	Dahlonega, G	Ga..	250,0 0	250,000	1	*				
45	Dardanelles, G	Cal..	1,000,000	100,000	10					
46	Decatur	Colo.								
47	Deseret, G. S	Utah	500,000	50,000	10	*				
48	Dunderberg, S	Colo	1,500,000	150,000	10	*				
49	Durango, G	Colo.	500,000	100,000	1	*				
50	Elko Con., S	Nev..						Mar	1884	.15
51	Empire, S	Utah	10,000,000	100,000	100					
52	Enterprise	Colo.								
53	Eureka Tunnel, S. L	Nev..	10,000,000	100,000	100	*				
54	Exchequer	Nev.	10,000,000	100,000	100	840,000	Aug	1885	.20	
55	Globe Copper	Ariz.								
56	Gold Placer, G	Colo.	5,000,000	200,000	25	*				
57	Goodshaw, G	Cal..	10,000,000	100,000	100	204,314	Jan.	1884	.10	
58	Grand Belt, C	Tex.	12,000,000	120,000	100	*				
59	Granville, G	N. C.	300,000	300,000	1	*				
60	Gregory-Bobtail, G	Colo.	550,000	550,000	1					
61	Harlem M. & M. Co, G	Cal..	1,000,000	200,000	5					
62	Head Center, S	Ariz.	5,000,000	200,000	25	170,000	Jan	1884	.10	
63	Hidalgo, S	Mex.	200,000	20,000	10					
64	Hortense, S	Colo.	2,000,000	200,000	10					
65	Julia Cons., G. S	Nev..	11,000,000	110,000	100	1,427,000	Apl.	1885	.10	
66	Lacrosse, G	Colo.	1,000,000	100,000	10	*				
67	Leviathan, S	Nev..	10,000,000	100,000	100	380,000	Sept	1882	.25	
68	Lucerne, S	Colo.	5,000,000	500,000	10	*				
69	Mammoth Bar., G	Cal..	10,000,000	100,000	100	71,000	Mar	1884	.15	
70	Mariposa pref., G	Cal..	5,000,000	50,000	100	1,687,500	Dec	1881		
71	" common, G	Cal..	10,000,000	100,000	100	1,975,000	Feb	1883	.25	
72	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Dec.	1881	.20	
73	Mayflower, S	Nev..	1,0 0,000	100,000	100	60,000	Mar	1884	.15	
74	Mexican, G. S	Nev.	10,000,000	100,800	100	2,490,160	Feb.	1885	.25	
75	Michoacan Synd	Mex.								
76	Miner Boy, G. S. L	Colo.	5,000,000	500,000	10	*				
77	Miller	Nev	5,000,000	200,000	25					
78	Mono, G	Cal..	5,000,000	50,000	100	560,000	Jun.	1885	.50	
79	Moose Silver, S	Colo.	3,000,800	300,000	10	*				
80	Nevada Syndicate									
81	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*				
82	North Standard, G	Cal..	10,000,000	100,000	100	20,000	Nov			
83	Noonday	Cal..	600,000	60,000	10	208,000	Dec.	1881	.10	
84	Old Dominion, C	Ariz.	3,000,000	300,000	10					
85	Oriental	Nev..	2,000,000	200,000	10					
86	Oriental & Miller, S	Nev..	10,000,000	400,000	25					
87	Overman, G. S	Nev..	11,520,000	115,200	100	3,685,040	Apl.	1885	.20	
88	Park, S	Utah	2,000,000	200,000	10					
89	Peer, S	Ariz.	10,000,000	100,000	100	105,000	July	1885	.30	
90	Peerless, S	Ariz.	10,000,000	100,000	100	180,000	Aug	1885	.50	
91	Plutus, G. C. S. L	Colo	2,000,000	200,000	10	*				
92	Potosi	Nev..	10,200,000	112,000	100	865,600	July	1885	.50	
93	Quartz Creek				100					
94	Rappahannock, G	Va		250,000		*				
95	Red Elephant, S	Colo.	500,000	500,000	1	*				
96	Retort M. & M. Co	Colo.			10					
97	S. P. & Canon del A. C.	N. M.	10,000,000	400,000	25	*				
98	Silver Cliff, S	Colo.	5,000,000	400,000						
99	Sonora Con	Mex.	5,000,000	200,000	25	*				
100	South Bodie, G	Cal.					Mar	1882	.15	
101	South Bulwer, G	Cal..	10,0 0,000	100,000	100	100,000	May	1881	.25	
102	South Hite	Cal..	10,000,000	100,000	100	195,000	Jan.	1883	.05	
103	South Pacific	Cal..		100,000	5					
104	State Line, S	Nev..	250,000	250,000	1					
105	Sullivan, G. S. L	Me...	500,000	100,000	5	125,000	Dec.	1882	.25	
106	Sutro Tunnel	Nev..	20,000,000	2,000,000	10	*				
107	Tamarack, C	Mich.	1,000,000	40,000	25	520,000	Apl.	1885	3.00	
108	Taylor-Plumas, G	Cal..	1,000,000	200,000	5	*				
109	Tioga Cons., G	Cal..	10,000,000	100,000	10	*				
110	Todos Santos, S	Mex.	1,000,000	100,000	100	325,000	Oct.	1882	.10	
111	Tuscarora, S	Nev.	10,000,000	100,000	1 0	110,000	Oct.	1881	.15	
112	Unadilla, S	Colo.	50,000,000	500,000	100	*				
113	Union Con., G S	Nev..	10,000,000	100,000	100	2,035,000	Sept	1885	.25	
114	Utah, S	Nev..	2,000,000	20,000	100	1,810,000	Dec.	1884	.50	
115	Vandewater	Nev.,	20,000,000	200,000	100	*				
116	Washington	Ariz.	2,000,000	200,000	10					
117	Wellington, G	Nev..	100,000	50,000	2	*				
118	Whalen Copper	Nev..	2,5 0,000	100,000	25					

G. Gold. S. Silver. L. Lead. C. Copper. * Non-assessable. † This company, as the Western, up to December 10th, 1881, paid $1,400,000. ‡ Non-assessable for three years. § The Deadwood has previously paid $275,000 in eleven dividends, and the Terra $75,000. ‖ Previous to the consolidation of the California and Consolidated Virginia in August, 1881, the California had paid $31,320,000 in dividends, and the Consolidated Virginia $42,930,000. ** Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid $1,350,000 in dividends.

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 12. H.	Sept. 12. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sept. 18. H.	Sept. 18. L.	SALES.
Alice, Mon.											.06	.05	9,400
Amie Con., Co.													
Argenta													
Bassick, Co.													
Belle Isle, Ne.	.15												1,000
Bodie Cons., Ca.	1.75				1.65		1.75		1.85	1.75	1.75		1,100
Bulwer, Ca.	.38				.40		.38						1,250
California, Ne.													
Cal. & Hecla, Mich.													
Castle Creek									.06				100
Chollar									1.85				200
Chrysolite, Co.							.81				1.05	.75	2,000
Colorado Central											1.30		175
Cons. Cal. & Va., Ne.	1.60	1.55					1.75	1.70	1.75	1.65			5,200
Crown Point													
Dunkin, Co.													
Eureka Cons., Ne.													
Father de Smet, Dk.													
Franklin													
Gold Stripe, Ca.													
Gould & Curry, Ne.	1.10												200
Grand Prize, Ne.													
Green Mountain, Ca.													
Hale & Norcross, Ne.	4.60				5.50				5.50				350
Hall-Anderson, N. S.	.01												2,500
Homestake, Dk.			17.13		17.00		17.00				17.13		310
Horn-Silver, Ut.	2.20				2.15	2.10	2.25				2.25		2,110
Independence, Ne.													
Iron Silver, Co.													
Leadville C., Co.							.27				.35		700
Little Chief, Co.	.26						.26		.25		.28	.24	1,600
Little Pittsburg, Co.	.24				.25	.24	.25	.23					1,600
Martin White, Ne.													
Moulton													
Navajo, Ne.			.72				.75	.70					700
North Belle Isle, Ne.													
Ontario, Ut.					26.00						25.00		30
Osceola													
Plymouth	17.00		18.00						18 13				110
Quicksilver Pref., Ca.									23.00				100
" Com., Ca.													
Quincy													
Robinson Cons., Co.	.53						.50		.40				925
Savage, Ne.					2.25		2.35						300
Sierra Nevada, Ne.					1.25		1 30						350
Silver King, Ar.											6.25		100
Spring Valley, Ca.													
Standard, Ca.							1 05	1.00	1.05	1.00			880
Stormont, Ut.					.09								
Tip Top, Ar.													
Yellow Jacket							1.90						170

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 12. H.	Sept. 12. L.	Sept. 14. H.	Sept. 14. L.	Sept. 15. H.	Sept. 15. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sept. 18. H.	Sept. 18. L.	SALES
Allouez													
Alta	.35						.36		.35		.32		1,900
American Flag													
Barcelona, G.													
Bechtel Con., G.													
Belvidere													
Belcher													
Best & B'licher, G. S.	1.70				2 00	1.90	1 75		1.75				700
Big Pittsburg, S. L.													
Bowman Silver													
Bull-Domingo, S.L.													
Bal., B. H., G.	2.05		2.40	2.25	2.75		2.75		2.75		2.70	2 60	2,110
Central Ariz'na, S.													
Chollar													
Cons. Imperial													
Con. Pacific													
Cusi													
Decatur													
Durango, G.													
Eastern Oregon													
Goodshaw, G.													
Harlem M. & M. Co.													
Harshaw													
Kossuth													
Lacrosse, G			.11		.10		.10		.11	.10			4,000
Mariposa Pref., G.													
" Com., G.													
Mexican, G. S.													
Mono													
New Pittsburg													
Noonday													
North Standard, G.													
N. Horn-Silv'r, S L.													
Pri'n'l & Miller, S													
Potosi													
Rappahannock G													
Red Elephant, S.													
Ridge													
Silver Cliff, S.													
Sonora Con.													
South Bodie, G.													
South Bulwer, G.													
South Hite													
South Pacific													
State Line, 1 & 4, S.													
" Nos. 2 & 3, S.													
Sutro Tunnel	.17	.16	.16		.17		.16		.17	.16	.17		10,000
Tamarack													
Tioga													
Unadilla, S													
Union Cons., G. S.	.60								.65				500
Utah													

Dividend shares sold, 33,460. Non-dividend shares sold, 23,710.

by employés, and for steam and heating purposes about the mines :

COMPANIES.	August, 1885.	August, 1884.	Difference.
Phila. & Reading RR.	1,181,775	1,330,703	D. 148,928
Lehigh Valley RR.	548,039	663,844	D. 115,805
Del., Lack. & West. RR.	521,489	600,412	D. 78,923
Del. & Hud. Canal Co.	262,300	418,587	D. 156,287
Pennsylvania RR	298,508	317,315	D. 18,807
Pennsylvania Coal Co.	146,027	173,101	D. 27,074
N. Y., L. E. & W. RR.	65,772	48,448	I. 17,324
Total	3,023,910	3,552,410	D. 528,500

COMPANIES.	For Year 1885.	For Year 1884.	Difference.
Phila. & Reading RR.	6,967,229	6,993,011	D. 25,782
Lehigh Valley RR	3,466,076	3,743,209	D. 277,133
Del., Lack. & West. RR	2,904,476	3,283,347	D. 378,871
Del. & Hud. Canal Co.	1,851,454	2,123,086	D. 271,632
Pennsylvania RR	2,110,936	2,059,173	I. 51,823
Pennsylvania Coal Co.	850,994	874,759	D. 23,765
N. Y., L. E. & W RR.	375,013	237,693	I. 137,320
Total	18,526,238	19,314,278	D. 788,039

The stock of coal on hand at tide-water shipping points, August 31st, 1885, was 988,782 tons ; on July 31st, 1885, 734,700 tons ; increase, 254,082 tons.

The following companies fell behind their allotments in August as stated : Reading, 80,850 tons ; Lehigh Valley, 88,961 ; Delaware, Lackawanna & Western, 137 ; Delaware & Hudson, 95,200 ; and Pennsylvania Coal Company, 16,472 tons. The Pennsylvania Railroad exceeded its quota by 38,507 tons, and Erie, by 17,022 tons ; showing a net result of a failure of the companies to mine the allotted quantity of 3,250,000 tons by 226,090 tons.

For the eight months, the following companies fell short of their allotments as stated : Reading, 84,046 tons ; Lehigh Valley, 91,323 ; Lackawanna, 8599 ; Delaware & Hudson, 145,046 ; and Pennsylvania Coal Company, 56,506 tons. Pennsylvania Railroad exceeded its quota by 658,996 tons, and its production for the like period in 1884 by 51,823 tons. The Erie exceeded its quota for eight months by 102,863 tons, and its production for the like period of last year by 147,320 tons.

Never in the history of the coal trade has the production been forced to a greater extent than during the past two months. Sales have been urged to a considerable degree, but of course could have been forced to a greater extent by auctions and a great reduction of prices.

In July, we urgently advised a reduction of the output, for that month and August, of 1,000,000 tons, feeling at the time that we were conservative in our suggestion. Such a curtailment from the allotment of those months would have greatly helped the trade, but would not have completely saved it, as the actual curtailment should have been quite 1,250,000 tons.

There probably will be, for a short time this fall, a demand for coal that will equal the current allotment, and probably permit the companies to draw upon their stocks. There will be plenty ready to attempt to whoop things, and in doing so they are more likely to deceive themselves than the buyers, and leave the trade, during the latter part of November and through December, in a worse condition than we have seen it this year. Buyers do not expect that there will be an efficient combination next year, and are not willing, as a general thing, to carry larger stocks than possible, regardless of freights and other conditions.

Yesterday's Philadelphia *Press* said : The anthracite coal trade is but little if any better. There is a slightly better inquiry for coal, but the buyers still have all the advantage on account of the heavy shipments. These shipments are heavier than the demand, so there is no chance of reducing stocks. The amount of coal in stock increased about a quarter of a million tons in August, and it will increase again this month, but not quite so heavily. Under these circumstances, there are continual chances to buy cheap coal, and purchasers insist on driving the best kind of bargains. The coal companies console themselves with the idea that this state of affairs can not last much longer, as the requirements of the season will soon force lethargic buyers into the market. There have been no official reductions this week, either in prices or tolls. Consultations looking to peace between the Pennsylvania and the Reading are going on daily. They began on Monday last, when President Roberts and President Keim met at the Pennsylvania office and talked over all the intricate questions involved. Since that time, a number of influential gentlemen on both sides have met and amicably discussed the differences. No definite understanding has yet been arrived at, but it can be said that the matter has gone so far that a committee of managers of the Reading will soon be appointed to confer with Pennsylvania officials. There are good grounds for believing that a definite understanding will grow out of the present negotiations, which will be of great advantage to the traffic interests of both companies.

Yesterday's *Ledger* said : The Reading Railroad is also in the field as a borrower on coal paper, having put out a considerable amount in the past day or two.

Bituminous.

Upon the whole, we think there is a little better demand for this class of fuel, although, so far, there has been no improvement in prices, which have been so low and unprofitable that a serious effort is now making to stiffen up the actual selling rates. Contractors are not calling for as much coal as a year ago, still there is a very large quantity moving.

Yesterday's *Commercial Advertiser* contained the following from Pittsburg :

The large transfers of valuable coal property to the H. C. Frick Coke Company, and the reported formation of a monopoly by that concern, published in the *Commercial Advertiser* on the 8th inst., have caused much uneasiness among coke operators. To-day, it was learned that James Cochran & Sons, the largest coke firm outside the syndicate, have sold their extensive works at Dawson station to the Frick Company for $762,000. An operator said : "All the recent purchases have been for cash, but I don't see where the deuce the money comes from. Andrew Carnegie has a fat bank account, but I don't think he is putting up all the cash. Some interesting developments may be looked for soon."

Mr. Carnegie is the principal stockholder in the Frick Company, and a monopoly of the trade in coke, which is largely used in the manufacture of steel, would enable his Edgar Thomson Steel Company to dictate to competitors.

Buffalo. Sept. 17.

[From our Special Correspondent.]

Briefly stated, the situation of the anthracite coal trade is without change. Many persons feel that this will be the last season of the combination, but do not give any special reasons why or wherefore. Your New York article of last week "hit the nail on the head," as a member of our Exchange stated. Another member was mildly vicious ; his opinion was, "that nine tenths of the stories floating around about the hard coal trade were all bosh." A dealer was noncommittal. "I will never give any items to an outsider," says he ; while a friend at his elbow, laughing, added, "for a good reason—you never know any thing ; or if you do, you do not know enough to make yourself intelligible."

Reports of cutting rates of anthracite coal here and elsewhere are rife, and apparently many of such reports are correct. Toronto, Canada, is afflicted with

the "cutting and maiming" mania almost equal in intensity to the disease here. Our retail trade is said to be in a pretty satisfactory condition, with no new developments made public.

The bituminous coal situation remains as at my last report. The unprecedentedly low prices of course help the manufacturers and consumers, and indirectly trade generally. One of our firms has been and is doing a very large business, but whether satisfactory to its revenues it alone can say. To the outsiders, it would appear that profits must be very small.

Trade in coke is slightly improving, and although progress is slow, an appearance of sureness is observable. Indications are, that prices will not undergo any material change in the near futures

Anthracite coal-burning engines are to be ordered for the Erie Railroad, the experiment made by using the Lehigh Valley engines having proved successful. The passenger service will be benefited considerably, especially in the freedom from smoke, cinders, etc.

Spiritual consolation for coal producers may result from experiments reported by a Western newspaper relative to the manufacture of whisky from coal-gas !

A special notice has been issued by the New York, Lake Erie & Western Railroad Company, as follows : All tariff and special rates, now in existence, for the transportation of anthracite or bituminous coal and its products, will be abrogated September 30th, 1885. On the same date, all arrangements and agreements for the payment of transferring, switching, loading, or unloading, or any other allowances of any kind made by this company, will also be abrogated. A new tariff will be at once prepared and issued, to take effect on October 1st, 1885.

Mr. James S. Hammond, for the past fifteen years local freight agent of the New York, Lake Erie & Western Railroad, has been appointed general freight agent of the company. He will assume the responsibilities of his position on October 1st.

Lake freights have ruled steady, and it is not expected that rates will vary materially from present figures to Chicago and Milwaukee this season. Many vessels left light during the week to ports where shippers had orders for coal, but there was none here for shipment. The movement Westward from the mines by railroad was quite large, in anticipation of the change of rates. The result of this movement was a scarcity of coal here. This season has been a disastrous one for vessel owners, in consequence of the very low freights that have prevailed for both down and up tonnage.

The shipments of coal by lake from Buffalo from September 10th to 16th, both days inclusive, were very light, namely, 32,853 tons : 16,135 to Chicago, 6175 to Milwaukee, 2600 to Duluth, 600 to Ludington, 650 to Sandusky, 200 to Two Harbors, 2550 to Green Bay, 823 to Detroit, 3000 to Fort William, 120 to Dunville. The freight engagements were at the following rates : 50c. to Chicago, Milwaukee, and Green Bay ; 30c. to Duluth ; 15c. to Sandusky ; 40c. to Fort William ; 30c. to Two Harbors ; 30c. to Detroit ; and 50c. to Ludington ; closing inactive. No engagements made for the past forty-eight hours. Coal scarce.

The canal shipments of coal for the past week were as follows : 1 boat-load to Schenectady at 85c. net ton, captain to pay loading and unloading ; 2 boat-loads to Lockport at 30c. net ton, captain to pay unloading only. The nominal asking rates are as follows : To New York, $1.25 net ton, captain to pay loading and unloading ; to Syracuse, 60c. gross ton, captain to pay loading and unloading ; and to Albany and West Troy, 95c. net ton, captain to pay loading and unloading.

Coal is taken from Charlotte to Kingston, Canada, at 25c. a ton.

The receipts of coal at Duluth for the week ended September 12th were 22,381 tons.

Boston. Sept. 16.

[From our Special Correspondent.]

The market is quiet, and there is very little to say at this time. Coal of all sizes is plenty, and this is especially true of domestic coals. This is due, in no small measure, to the extensive re-breaking that has prevailed this season. Chiefly on this account there is such a glut of pea and buckwheat at shipping points that buyers can obtain this coal at almost their own figures. At Philadelphia, Nut coal is selling at $3.25, with Pea at $1.75@$2, while Buckwheat may be had at $1.50@$1.75. There is an abundance of stove coal, save in a few cases, where it is a little difficult to obtain free-burning stove.

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share.												Sales from Sept. 12th to Sept. 18th, inclusive.
		Sept. 12.		Sept. 14.		Sept. 15.		Sept. 16.		Sept. 17.		Sept. 18.		
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Barclay Coal														
Cameron Coal	50													
Col. C & I	10	17¼	17⅛	18⅛	17¼	19	18	19	18¼	18⅛	18	17¾	17	5,072
Ches. & O. RR	100					7⅝				7⅜	7⅛	7½	7⅜	1,258
Consol. Coal	100													
Cumb. C. & I	100													
Del. & H. C	100	81¾	81	82⅝	82⅛	82½	82	82⅛	81⅜	84½	82½	85¾	83¼	6,366
D., L. & W. RR	50	98¾	97⅛	99⅜	98¼	99½	98¾	99¼	99	100⅞	99¾	102¼	100	175,952
Elk Lick Coal Co														
Lehigh C. & N.	50	42		42½	42	42⅝	42½	43⅛	42¾	43⅝	43			2,084
Lehigh Valley RR.	50	54½		54½		55	54⅝	55		55½	55			629
L. & W. C. & I Co.														
Maryland Coal	100							9⅛	8⅝	9½				500
Montauk Coal	100													
Morris & Essex	50	125		125⅜	124¾									123
New Central Coal	100					7⅜	7	8⅛	7⅛	8⅞	8¾	8⅞		1,900
N. J. C. RR	100	41⅝	40	42⅝	41⅜	42⅝	40¾	42¼	41½	42½	41½	42⅜	41¼	44,635
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.	50	49⅜	49	50⅛	49⅛	50¼	49⅞	50½	50	50⅞	50¼			12,767
Ph. & R. RR.*	50	17⅝	17	18	17¼	17⅝	17⅜	19¼	18	19½	18⅝	19	18¾	27,580
Spring Mountain	50													
Westmoreland Coal	50													

* Of the sales of this stock, 17,115 shares were in Philadelphia and 10,465 in New York. Total sales, 278,866.

As for broken and egg, the supply continues rather light, owing chiefly to the extensive re-breaking that we have mentioned. Individual operators especially have produced as little broken and egg as possible, it would seem, and have "overdone" it.

Freights are firmer, and while there is no disposition to load up, dealers are generally desirous of keeping stocks along. As before noted, very much depends on the weather and on the amount of coal that retailers sell. The market seems likely to hold its own if the cool weather continues, but otherwise, will most likely become unsettled and weaker.

There is nothing new to note in bituminous coal. We quote cargo lots at $2.25@$2.35 f. o. b., and there is more trade of this nature than usual at this time of year. Some coals are selling as low as $3@$3.15 delivered, and notwithstanding the extreme low price of small sizes of anthracite, as noted above, they stand no show beside bituminous prices. Provincial coal is quiet, and must be with domestic coal selling so low. Freights are a little stronger. We quote :

New York, 75@90c. ; Philadelphia, 95c.@$1.05 ; Baltimore, $1.10@$1.15 ; Newport News, $1@$1.05 ; Richmond, $1.10@$1.15 ; Cape Breton, $1.40@$1.50 ; Bay of Fundy, $1.25.

Retail trade has been more active. Prices are unchanged. We quote :

White ash, furnace and egg	$4.75@$5.00
" " stove and nut	5.25@ 5.50
Shamokin, egg	6.00
" stove	6.25
Lorberry, egg and stove	6.50@ 7.00
Franklin, egg and stove	7.25@ 7.75
Lehigh, furnace, egg, and stove	5.25@ 5.50
" nut	5.50@ 5.75

We quote wharf prices as follows : Stove, $4.50@$4.75 ; Broken and Egg, $4@$4.50.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, Sept. 18.

The mining market during the week was dull and listless, and the dealings were confined to a few stocks. A reaction took place, however, to-day, and strong prices prevailed with a good deal of business. Chrysolite sold at very strong prices, and closed strong at $1.05. Caledonia also shows considerable strength; in fact, has been strong throughout. A complete summary of the market is given below. The total transactions were 57,170 shares, showing an increase of 11,874 shares as compared with those of the previous week.

The Comstock shares were fairly dealt in at steady prices. Consolidated California & Virginia sold strong at $1.55@$1.75. Gould & Curry was quiet at $1.10. Hale & Norcross, with small sales, sold at from $4.60@$5.50. The latest reports from the mine state that the drift on the 3100-foot level is now out 30 feet, the last 12 feet in good ore, which extends over the entire face. The assays taken from samples brought out of the mine are higher than those taken just previously, one of them giving a value of $100 a ton, and an average of $110 a ton over the entire face and side of the drift. The west drift from the winze also shows an improvement in the face. The west drift from the station on the 3100 level in the combination shaft is expected to cut the vein soon. Savage was quiet at $2.25@$2.35, as was also Sierra Nevada, which sold at from $1.25@$1.30. Best & Belcher sold at from $2@$1.75, and Chollar at $1.85. Union Consolidated was but moderately dealt in, and sold at from 60@65c. Sutro Tunnel records a business of 10,000 shares, and sold at from 16@17c.

The Bodie stocks were quiet and steady. Bodie records a small business, and sold at from $1.65@$1.85@$1.75. Bulwer sold at from 40@38c., with a fair business. Standard was quiet and steady at from $1.05@$1.

The Leadville stocks showed quite an improvement in prices, and were fairly dealt in. Amie sold to-day at from 6@5c., and was largely dealt in. Chrysolite was quite strong to-day, selling at from 81c.@$1.05 ; the sales during the week amounted to 2000 shares. It was rumored to-day that ore had been found on the second contact of this mine.

Leadville was strong at from 27@35c., and so was Little Chief, which ranged from 24@28c. Little Pittsburg records a fair business at from 23@25c. A report from the Iron Silver Company shows that the amount in the treasury July 31st was $157,619.67, and it is said that in all probability a dividend of 20 cents a share will be paid in November or December. The total product of the mine from January 1st to July 31st, 1885, was $382,085.80.

Horn-Silver was rather quiet, and sold at steady prices, ranging from $2.10@$2.25. Homestake sold at from $17@$17.13, with a small business. This company increased its credit balance from January 1st to August 1st, 1885, from $179,969 to $309,851. Ontario sold at from $26@$25 in small lots. The credit balance of this company, which was $237,388 on January 1st, 1885, was up to $484,596 on August 1st, 1885, the latest date to which the accounts are written up.

Plymouth sold at $17 ex dividend, and at from $18@$18.13 dividend on. Colorado Central records a small sale at $1.30. The president of this company, Mr. Lichtenstein, has just returned from the mines, and reports that the ore-body holds out well, and is yielding largely, while much development-work is going on. Experiments with the concentrating ores have been made on the spot, but a process has not been found as yet to treat the ores successfully.

Coal Stocks.

The week under review has developed a stronger tone in the stock market. The actual developments in the railroad and commercial world were not sufficient to advance prices that were already high ; but there appears to be a feeling that a much better condition of affairs is likely to come with a rush, upon the action to be taken by the railroad managers at a very early day. Confidence in the reasonably early future is very great, and but the least excuse is required to put up the prices of stocks.

The coal stocks are unusually strong to-day. This is explained by the improved condition of the coal trade, which we discuss under its proper heading.

Lackawanna has been dealt in to the extent of 175,952 shares at $97½@$102¼, closing at $101⅛. Delaware & Hudson, with sales of 6366 shares at $81@$85¾,

closed at $85½. Jersey Central was dealt in to the extent of 44,635 shares at $40@$42⅞, closing at $42⅝. Reading is strong on efforts to bring about an understanding between that company and the Pennsylvania Railroad. The sales aggregate 10,465 shares at $17@$19¼, closing at $19.

Speaking of Lackawanna, to-day's *Tribune* says: Much speculation is indulged in as to what the forthcoming dividend will be. There would be little question of its being 2 per cent, if it was not known that some of the directors had held unofficial conferences on the condition of the coal trade, and between themselves expressed some anxiety over the situation.

Dividends.

Adams Mining Company has declared a dividend of ten cents a share, equal to $15,000, payable by the Farmers' Loan and Trust Company, New York City, September 20th.

Colorado Central Mining Company has declared a dividend (No. 4) of five cents a share, payable October 10th.

Father de Smet Consolidated Gold Mining Company has declared a dividend of twenty cents a share, payable at the office of Laidlaw & Co., No. 14 Wall street, New York, September 30th. Total to date, $1,010,000.

Granite Mountain Mining Company has declared a dividend (No. 8) of ten cents a share, amounting to $40,000, payable at the office of the company in St. Louis, on September 19th.

Helena Mining and Reduction Company has declared a dividend of four cents a share, payable at the First National Bank, Helena, Mont., October 15th.

Homestake Mining Company has declared a dividend (No. 85) of thirty-five cents a share, equal to $43,750, payable at the company's office in San Francisco, or by Lounsbery & Co., New York City, September 25th. Total to date, $2,918,750.

St. Joseph Lead Company has declared a dividend of 2 per cent on the capital stock of the company, payable at the company's office, September 21st.

Meetings.

Meetings of the following companies will be held at the time mentioned:

Belle Isle Mining Company, office of the company, No. 319 Pine street, San Francisco, Cal., September 24th, half-past one o'clock P.M.

Eureka Consolidated Mining Company, office of the company, No. 328 Montgomery street, San Francisco, Cal., October 19th, eleven o'clock A.M.

Yuscaran Mining Company, office of the company, No. 140 Nassau street, New York City, October 6th, twelve o'clock M.

Pipe Line Certificates.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

		Opening.	Highest.	Lowest.	Closing.	Sales.
Sept.	12..	$1 01⅛	$1 01¾	$1 01	$1.01¼	4,932,000
	14...	1.01⅜	1.01¾	1.00	1.00⅜	4,363,000
	15...	1.00⅛	1 00⅛	.99	.99⅝	5.747,000
	16...	.99	1.00½	.98⅞	1.00¼	6,496,000
	17..	1.00¼	1.01	1.00	1.00	4.516,000
	18...	.99¾	1.00¼	.99⅝	.99⅝	4.567,000
Total sales						30,621.000

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, Sept. 17.

The market the past week has been generally dull and inactive. The dealings in copper stocks have been confined to the leading mines; and so far, there is but little disposition to speculate in the general list. In Calumet & Hecla, an order to sell 100 shares has been peddled out, a little every day, as customers could be found to take it, at a decline from $217@$211, at which the last of the lot was closed. The best bid to-day was $210, and the market closed heavy. Tamarack sold early in the week 20 shares at $70, but yesterday it yielded to $69¾ on a 50-share lot, closing to-day at $68 bid, $72 asked. In Quincy, the only sale for the week was 95 shares on the 11th at $36½, closing $36 bid. Osceola advanced on small sales from $12½@$13, but receded to $12½, which was the bidding price at the close to-day. Franklin, dull, the only sale being 5 shares at $8½, an advance of $½ over last sale. A lot of 10 shares Atlantic sold at $8, the first sale for a long time. Total sales, for the week, 350 shares.

The market for silver stocks is dull in the extreme. There were no sales at the Stock Exchange, while at the Mining Board there is very little doing, and quotations are nominal. Bowman Silver sold at 5c. (1600 shares), just the amount of the last assessment. Holders are getting discouraged and are disposed to sell out while they can get something. Dunkin is steady at 18c., but there is not much stock offered for sale at present. Catalpa declined to 22c., and "Cusi" sold at $1.05. In the miscellaneous list, there is no activity.

3 P.M.—At the afternoon Board, Calumet & Hecla sold at $210½. The remainder of market unchanged.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

Name of Company.	Closing Quotations. Sept. 11.	Sept. 12.	Sept. 14.	Sept. 15.	Sept. 16.	Sept. 17.
Albion	... ..	.... ..	.. .	.. ..	... ..	.... .
Alpha	... ..	.... ..	.. .	.. ..	... ..	.... .
Alta	.30	.30	.35	.35	.35	.30
Argenta	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Bechtel	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Belcher	... ..	.... ..	.... ..	1.00	.... ..	.... ..
Belle Isle	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Best & Belcher	1.62½	1.62½	1.87½	1.75	1.75	1.62½
Bodie	1.62½	.... ..	1.75	1.62½	1.75	1.62½
Bullion	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Bulwer	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Chollar	1.37½	1.62½	1.75	1.75	1.62½	1.62½
Con. Pacific	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Con. Cal. & Va.	1.50	1.62½	1.75	1.62½	1.75	1.75
Crown Point.	1.00	.... ..	1.12½	1.12½	1.12½	1.12½
Day	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Elko Cons	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Eureka Cons	... ..	.... ..	5.00	4.50	4.50	.... ..
Exchequer	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Gould & Curry	1.00	1.12½	1.25	1.12½	1.12½	1.12½
Grand Prize	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Hale & Norcross	4.25	4.62½	5.37½	5.25	5.12½	5.12½
Independence	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Martin White	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Mexican	.65	.75	.80	.80	.80	.75
Mono	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Mount Diablo	... ..	2.50	.... ..	.... ..	.... ..	.... ..
Navajo	.65	.70	.70	.70	.75	.75
Northern Belle	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
North Belle Isle	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Ophir	... ..	1 00	1 12½	1.12½	1.12½	1.12½
Overman	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Potosi	.55	.60	.65	.65	.60	.60
Savage	2.00	2.00	2.37½	2.25	2.00	2.00
Scorpion	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Sierra Nevada	1.00	1 12½	1 25	1.25	1.37½	1.25
Silver King	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Tip-Top	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Union Cons	.60	.55	.60	.70	.60	.60
Utah	.60	.75	.... .	.60	.65	.60
Wales Cons	... ..	.... ..	.... ..	.... ..	.... ..	.... ..
Yellow Jacket	1.75	1.87½	1.87½	1 87½	2.00	1.87½
...	... ..	.... ..	.... ..	.... ..	.... ..	.... ..

MEETINGS.

ANNUAL MEETING.

EUREKA CONSOLIDATED MINING COMPANY.—Office of the Eureka Consolidated Mining Company, No. 328 Montgomery street, San Francisco, September 15th, 1885.—The annual meeting of the stockholders of the above company will be held at the office of the company, Room 6, No. 328 Montgomery street, San Francisco, on MONDAY, the 19th day of October, 1885, at 11 o'clock A.M. of said day, for the election of five Trustees to serve for the ensuing year, and the transaction of any other business that may be presented. Transfer-books will be closed Oct. 16th. E. H. WILLSON, Sec.

HORN-SILVER MINING COMPANY OF FRISCO, UTAH.

OFFICE, 44 WALL STREET, NEW YORK.

The annual meeting of stockholders of the Horn-Silver Mining Company will be held in Frisco, Utah, on TUESDAY, the 6th day of October, at 12 o'clock, at the office of the company.

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	15		3.66	9.23	24.49	42 42	57.49	73.35
	18	1½	4.33	10.78	28.95	50.14	67.96	86.70
	21		5.00	12 44	33.41	57.86	78 42	100.05
	24	2	5.67	14 10	37.87	65.59	88.89	113.40
	27		6.29	15.58	41.85	72 48	98 23	125.32
	30	2½	6.86	17.07	45.83	79.38	107.58	137.25
¼ Column.	33		7.45	18.55	49.81	86.28	116.93	149.17
	36	3	8.05	20.04	53.80	93.18	126.28	161.10
	39		8.58	21.37	57.38	99.38	134.68	171.82
	42	3½	9.12	24.70	60.97	105.58	143.09	182.55
	45		9.66	24.03	64.55	111.78	151.49	193.27
	48	4	10.20	25.37	68.14	117.99	159.90	204.00
	54	4½	11.17	27.79	74.64	129.27	175.19	223.50
	60	5	12.15	30.22	81.15	140.55	190.48	243.00
½ Column.	66	5½	13.05	32.46	87.16	150.96	204.58	261.00
	72	6	13.95	34.70	93.18	161.37	218.69	279 00
	78	6½	14.84	36.81	98.84	171.17	231.97	295.95
	84	7	15.74	38.92	104.50	180.97	245.26	312.90
	90	7½	16.51	40.96	109.96	190.42	258.03	329 25
	96	8	17.28	42.99	115.62	199.87	270.81	345 61
¼ Page.....	102	8½	18.09	45.01	120.85	209.28	283.55	361.75
	108	9	18.90	47.03	126.28	218.69	296.29	377.90
	114	9½	19.72	49.07	131.77	228.19	309.19	395.45
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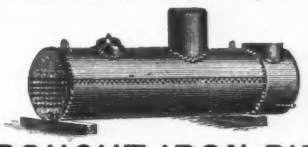

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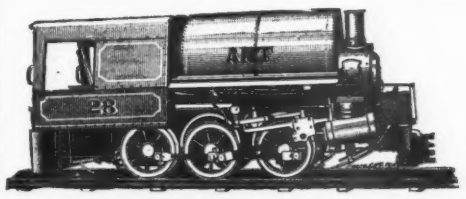

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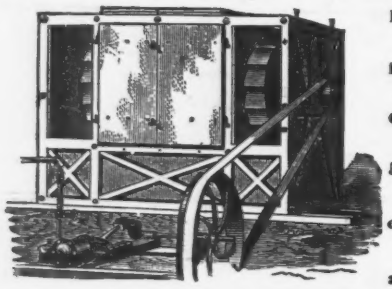

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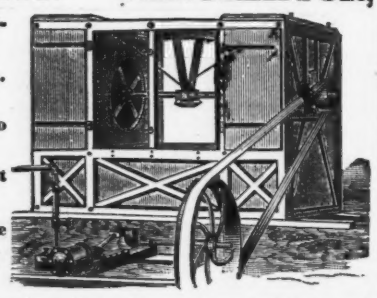

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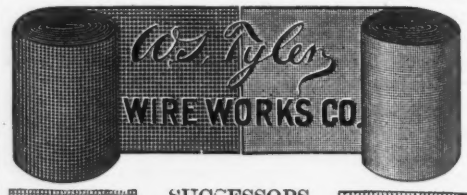

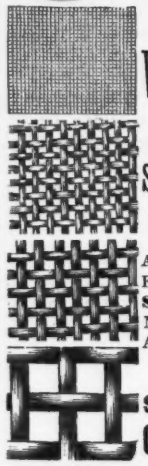

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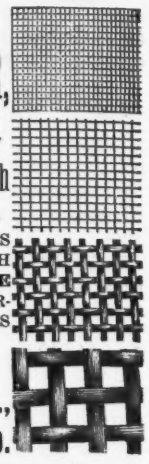

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